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The purpose of this investigation was to learn the effect of a soccer coaching education course upon the coaching efficacy as measured by the Coaching Efficacy Scale (CES; Feltz, Helper, Roman, & Paiement; 2009) of coaches participating in the course. 122 responses from participating coaches were used for pre-course analysis, and 35 were used for analysis of pre- and post-course measurements. MANOVA testing for differences between male and female pre-course scores revealed no overall significant difference, and univariate tests revealed no significant differences for any of the individual domains between male and female coaches pre-course scores. There were no significant differences among the groups based upon level of experience. In comparing the 4 CES domains (Game Strategy, Technical Instruction, Motivation, and Character Building), a significant multivariate difference was found between pre-and post course scores indicating a positive change in coaches CES ratings. Univariate analysis revealed positive significant differences between pre-and post-course CES measures for the Motivation, Game Strategy, and Technical Instruction domains. These results point towards the ability of a coaching education program to bring about positive changes in coaches' confidence in their abilities to be an effective coach.

In addition, coaches were asked open-ended questions. Coaches were asked to list the three most important things learned from the course. Themes cited by coaches included Methodology, Drills and Exercises, Tactics, Psychology/Confidence,

Networking/Contacts, Knowledge, and Organization. Coaches were asked to list three ways in which their coaching would change. These ways included Knowledge, Organization, Communication, Increased Confidence, Use of Coaching in the Game Methodology, a General Increase in Coaching Skills, No Change in Coaching, and Use of New Drills.

Results of this study indicate a coaching education program can bring about positive changes in coaching efficacy. Open-ended question revealed factors coaches perceived as important to their educational experience that would impact their coaching. These results are encouraging regarding the value of coaching education programs as a method to improve coaching efficacy.

AN EXAMINATION OF THE EFFECT OF THE NATIONAL SOCCER COACHES OF AMERICA ASSOCIATION'S NATIONAL DIPLOMA PROGRAM ON COACHES' PERCEIVED COMPETENCIES AND PROGRAM EFFECTIVENESS

by

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Approved by

_____

Committee Chair

To

Dr. Gill,

who listened to the guy in a sweaty t-shirt amid a sea of khaki;

Mom and Dad,

who had me believe I could do anything no matter what others thought;

Refilwe and Atiishe,

for putting up with me.

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

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CHAPTER I

INTRODUCTION

Involvement in sport appears beneficial to children (Seefeldt & Ewing, 1996; Wiersam & Sherman, 2005). In pursuit of these benefits, large numbers of young people have become involved in organized sport. Numbers as high as 3,200,000 youth players from ages 4-19 years old (USYSA website, 2009) are playing organized youth soccer, working with over 300,000 coaches. The experiences of these young athletes can be enhanced by the competence of coaches (Seefeldt & Ewing, 1996). Smith and Smoll (1993) as well as Westre and Weiss (1991) found the enjoyment and development of young athletes are enhanced when coaches trained to become more effective in their duties. Many authors have identified the need for effective coach training (Campbell, 1993; Cushion, Armour, & Jones, 2003; Gilbert & Trudel, 1999; Mills & Dunleavy, 1997; McCullick, Belcher, & Schempp, 2006). Benefits to the athletes include improved self esteem, enjoyment, and reduced sport performance anxiety (Wiersam & Sherman, 2005). Gilbert & Trudel (1999) stated "the evaluation of coach education programmes has become one of the most pressing issues in sport science research" (p.235). More recently, Chesterfield, Potrac, & Jones (2010) have more recently echoed this concern. Thus, examining the effect of a coaching education program should be beneficial to young athletes and add to the professional literature in this area.

Previous work has examined coaches and their training through an established training program (Smith & Smoll, 1993) as well as by observing coaches using various

methods of evaluation (Tharp & Gallimore, 1976; Rushall, 1977; Lucas, 1980: Crossman, 1985; Franks, Johnson, & Sinclair, 1988; Hammond & Perry, 2005). Franks et al. (1988) utilized a computer assisted instrument; Jones, Armour, and Potrac (2006) relied on interviews with a coach; Horch and Schutte (2003) examined competencies in coaches; Hammond and Perry (2005) used a multi-dimensional approach; and McCullick, Belcher, and Schempp (2005) questioned the participants in a coach certification program. Gilbert and Trudel (1999) have discussed the importance of evaluating coach education programs and its impact on sport science research and coaching. By investigating how coaches perceive the impact of coaching education programs on their coaching ability, we can learn how programs work and don't work to improve existing coaching programs.

Several authors investigated athletes' perceptions of their coach's behaviors. The Coaching Evaluation Questionnaire (CEQ; Rushall & Wiznauk, 1985) has been used to examine athletes' perceptions of their coach's personal qualities, personal and professional relationships, ability as a teacher and coach, and organizational skill. However, the psychometric properties of this instrument have been questioned and the CEQ is rarely found in research literature (Myers, Feltz, Maier, Wolfe, & Reckase; 2006). The Coaching Behavior Questionnaire (CBQ; (Kenow & Williams, 1992) has been used to study athletes' perceptions of their coach's behaviors in a specific situation during a contest versus a top opponent. Thus, the CBQ is limited in scope and application. For these reasons, athlete evaluations of coaching education programs are difficult

Recently, *The Sport Psychologist* devoted an entire issue to coaching education (Issue 20, 2006). Through this path, along with previously cited literature, coaching education is coming into light as an avenue to improved athletic performances and experiences. Several options are available for coaching education in the United States. Many sports provide coaching education through their national governing bodies (NGB's). For example, sport-specific coaching education programs are found in the NGB's of hockey, wrestling, hockey, soccer, track and field, and many others. General coaching education courses are available through a number of different methods. Among the most prominent of these offerings is the American Sport Education Program (ASEP). ASEP courses are offered as stand alone courses as well as in conjunction with sport-specific courses through NGB's. An example of this is seen with the American Volleyball Association. Coursework emphasizing volleyball skills and tactics are offered through the American Volleyball Association while material covering coaching issues and curriculum is given via ASEP.

The United States Sports Academy is an accredited University specializing in educational offerings related to sport. The USSA offers a bachelor's degree in coaching studies. Several colleges and universities offer a golf management program certified by the Professional Golf Association. The Red Cross offers first aid and CPR courses. These safety oriented courses fall under the domain of coaching education as knowledge of basic first aid and CPR should be required for all coaches. In the United Kingdom, McDonald's sponsored coaching education programs for 8,000 grass roots level soccer

coaches in 2006. McDonald's is currently sponsoring 10,000 coaches to complete an education program by 2010.

Given the increasing attention and varied opportunities for coaches to receive education, are coaching education programs helping? Gilbert and Trudel (1999) have discussed an evaluation strategy for coaching education programs which parallels Brinkerhoff's (1987) Six Stage Model of Evaluation. Their work suggests three issues to be examined. The manner in which the course is conducted is the first issue. Consistency is the factor that warrants the greatest concern (Brinkerhoff's Stage III). Despite consistent schedules, the manner in which instructors deliver material can vary widely in coaching education programs (Campbell, 1993). The second issue is to determine if the coach acquired any new knowledge (Brinkerhoff's Stage IV). This issue is further aggravated by the use of decontextualized standard tests. Given the scope of bodies providing coaching education (including National Governing Bodies) along with the saliency of experiential knowledge, standardized testing is not appropriate for evaluating coaches; a preferred method would include performance tests, interviews, and observations (Popham, 1993). Thus, evaluating the effect of a coaching education program would be best suited to evaluating a coach while he or she is coaching. The third concern is whether or not there was a change in coaching and instructional behaviors or references to course concepts after the course (Brinkerhoff's Stage V). The long term effect of a coaching education program has received little attention.

Several authors have researched evaluation strategies for behaviors exhibited by coaches. Instruments such as the Coaching Behavior Assessment System (CBAS; Smith,

Smoll, & Hunt, 1977), the Leadership Scale for Sport (LSS; Chelladurai & Saleh, 1980), and the Coaching Behavior Questionnaire (CBQ; Williams, Jerome, Kenow, Rogers, Sartain, & Darland, 2003) have been used to assess coaching behaviors. These instruments focus on coaching behaviors, which can be viewed as a part of coaching effectiveness. However, the LSS and CBG were developed from theoretical frameworks that are not grounded in coaches' experiences. Without this experiential grounding, great value in credibility to coaches is lost. CBAS addresses coaching behaviors, but research has not connected coaching effectiveness with observed behaviors; thus, the effectiveness of a coach cannot be directly attributed to the CBAS observed behaviors.

What would make coaching effective? Change is a factor consistent within many definitions of coaching effectiveness. What changes are observed, and who observes these changes? McCullick, Belcher, and Schempp (2005) investigated the viewpoint of coaches involved as participants in coaching education programs. The perspectives of those involved within a program offer insight into what works within a coaching education program. This insight has value in evaluating the effectiveness of a coaching education program.

What factors bring about effective coaching through change? The efficacy of a coach was found to influence the effectiveness of the coach (Feltz, Chase, Moritz, & Sullivan, 1999). Feltz, Helper, Roman, and Paiement (2009) stated "Higher efficacy coaches, as compared with lower efficacy coaches, were found to use more positive coaching behaviors, had more athletes who were satisfied with them as a coach, and had better performing teams in terms of winning percentage" (p. 25). Thus investigating if a

coaching education program can impact the efficacy of coaches would be a worthwhile pursuit to gauge the effect of a coaching education program. Regardless of the curriculum, a coach is ultimately concerned with the effect of a program: does this program make me a better coach?

Myers, Feltz, Maier, Wolfe, and Reckase (2006) investigated ways that coaches affected the learning and performance of their athletes. Four domains found relevant were motivation, character-building, technical instruction, and game strategy. Motivation is defined as the coach's ability to affect the athletes' psychological mood and skills. Character building is defined as the ability to influence their personal development and enhance a positive attitude toward their sport. Technical instruction is defined as the coach's ability to provide instruction along with diagnostic abilities. Game strategy is defined as the coach's ability to lead during competitions. The Coaching Efficacy Scale (CES; Feltz, Chase, Moritz, & Sullivan, 1999) measures a coach's belief in his or her ability to affect athletes' learning and performance through bringing about changes within the athletes and the listed domains.

Selection of the Course

The selection of the National Diploma Course for study was based upon several factors. Primary among these is the National Diploma is consistently delivered. The course is instructed by a staff that averages 7 years teaching the course. The curriculum has been consistent with no major changes for 15 years. The staff congregates every January for staff training. The Director of Coaching Education (a former staff coach and instructor) is present at each course (although not for the full duration of the course). The

director of each course averages 17 years experience within the NSCAA as an instructor and director.

The National Diploma course is a 50-hour course. This represents a significant time commitment by both the NSCAA and enrolled coaches. The course generally begins on a Monday evening and concludes the following Sunday at noon (some sites may change the start and finish days; the time commitment and schedule of topics remains the same). The course costs for the participants run between $950 and $1100, thus there is a significant financial commitment as well.

This course is the introductory residential course. Many coaches continue on to further their education by participating in the Advanced National and Premier Diploma courses. The National course includes many coaches who do not choose to continue their education for a variety of reasons.

The course was designed by soccer coaches rather than educators. As a result, the course emphasizes technical and game-related topics. Several topics do not receive as much time or attention as may be warranted. The course is limited by time and not all topics germane to educating a coach are covered. Many coaches, including those within the NSCAA on staff, have felt the need for increased awareness of topics such as basic physiology, sport psychology, injury treatment, parental communication, team management, and leadership (Tipping, personal communication). A few of these topics have been addressed, usually with a one hour and fifteen minute lecture by a coach with experience or education in that niche.

As a result of this time limitation, the four domains from Feltz et al (1999) and Myers et al. (2005) do not receive equal time or emphasis. The course, as described earlier, dedicates much more of the hours available to technical instruction and game related topics. The content is very sport-specific. The contents of the course curriculum are included in Appendix A.

Technical instruction is addressed in seven hours. These sessions are held primarily during the early part of the course. Topics include shooting, passing and receiving, dribbling, and heading. These sessions are held on soccer fields. Game strategy is addressed in three hours of field sessions and one hour of lecture. Character building is emphasized in an Ethics lecture of one hour. It should be noted that the staff is instructed to display good character and integrity and reiterate the importance of these qualities throughout all sessions; thus there is some secondary emphasis throughout the course. Motivation is discussed in a Sport Psychology/Team Management lecture of one hour and fifteen minutes. As with character building, this topic receives secondary emphasis throughout field sessions subliminally as staff coaches use different motivation techniques to motivate the coaches who are participating in field exercises.

Three hours and forty-five minutes are used to discuss teaching methods and process (two hours and forty-five minutes on field with one hour of lecture). Administrative tasks, laws of the game, club development, and examinations occupy the remaining time.

Though some of the domains noted by Feltz and Myers receive more attention than others, it is important to examine how the National course affects all of these

domains of the participating coaches. Feltz and Myers have stated all of these domains contribute to determining the effectiveness of a coach; if the National Diploma develops effective coaches, some evidence of change in these domains should occur.

Shortcomings of the course include the lack of a written manual for staff. Staff members plan and conduct sessions based upon the material supplied in the curriculum for enrolled coaches, through discussions with other staff coaches and the director of the specific course, and personal coaching experiences. Staff coaches are instructed to make sure they address topics within their sessions that may be later assigned as testing topics.

There is no specific mission statement for the course. The lack of clear objectives for the course is a great concern. The closest approximation of a mission statement is from the introduction to the curriculum contained in the manual given to all coaches: "Any individual completing a diploma course through the NSCAA Coaching Academy will become a more effective coach by understanding the need to organize appropriate material and information for the various ability, experience, and age levels of the individuals they coach." (p.5)

Research Questions

Thus, this study will examine the effects of the National Diploma Course coaching education program provided by the National Soccer Coaches Association of America to soccer coaches. Coaching effectiveness will be measured by changes coaches' self-ratings of coaching efficacy quantitatively in the four domains of motivation, technical instruction, character building, and game strategy before and after the program.

Several authors have found coaching efficacy to be a useful predictor regarding coach and athlete performance and attitudes. Feltz, Chase, Moritz, and Sullivan (1999) reported coaching efficacy to be a predictor of coaching behavior, player and team satisfaction, player and team performance, and player and team efficacy. In their study of 517 coaches, high efficacy coaches had higher winning percentages and greater levels of satisfaction in their athletes. Additionally, high efficacy coaches spent less time on organization than low efficacy coaches. Campbell and Sullivan (2005) found coaching efficacy predicted winning percentage and team satisfaction with their coach in male teams. Myers and Wolfe (20006) found athlete satisfaction to be increased when working with coaches high in coaching efficacy. Kent and Sullivan (2003) found coaching efficacy also predicted increased levels of coaches' commitment. Thus, coaching efficacy is an important consideration in coaching effectiveness.

The overall research question this study will address is: Do coaches who complete the National Soccer Coaches Association of America (NSCAA) National Diploma Coach Education Course improve in coaching efficacy after successfully completing the NSCAA course as contrasted with their efficacy prior to the course?

Efficacy will be assessed in the following domains: character building, technical instruction, game strategy, and motivation by coaches' self-ratings.

Specifically, the following sub-problems will be examined:

Sub-problem 1: Do soccer coaches who complete the NSCAA National Coaching Course improve coaching efficacy for character building?

Sub-problem 2: Do soccer coaches who complete the NSCAA National Coaching Course improve coaching efficacy for teaching of technique?

Sub-problem 3: Do soccer coaches who complete the NSCAA National Coaching Course improve coaching efficacy for teaching game strategy?

Sub-problem 4: Do soccer coaches who complete the NSCAA National Coaching Course improve coaching efficacy for motivating players?

To answer these questions, pre- and post course evaluations of self efficacy in the four competencies will be completed by coaches. It is posited that the National Diploma course will bring about positive changes in coach self-efficacy evaluations in the four domains of motivation, technical instruction, character building, and game strategy.

An additional exploratory research question is: how do soccer coaches evaluate the NSCAA National Diploma course? To answer this question, additional information will be sought from coaches' ratings and open-ended questions.

After completing the course, coaches will evaluate the course using ratings of course content, organization, appropriateness of content, and effect, and open-ended questions asking what they got from the course and how their coaching will change as a result of the course.

The coaches' responses to these questions will provide information on whether the course changes the efficacy of coaches as well as evaluative information on the course itself and its effect on coaches. This information may be useful in understanding and modifying the course to more effectively serve coaches.

Limitations

Results of this study are limited to soccer coaches in the USA. Coaches of mature (i.e., collegiate), experienced (i.e., regional Olympic Development Program), and elite (i.e., professional) soccer players may not incur the same perceived changes in their behaviors. Coaches having completed a coaching school other than the NSCAA National Diploma course may experience different effects. This study will examine only coaches with no prior residential coaching education program experience. Coaches in sports other than soccer may not see the same results from a comparable coaching program in their respective sport.

It should be noted the researcher is a member of the NSCAA National Staff and has worked within the NSCAA teaching courses. This offers benefits and drawbacks. The researcher is very familiar with the course being examined and, through his involvement, understands the course and curriculum. The researcher has access to all information from the course including the curriculum. The researcher has been with the NSCAA for 15 years and can attest to the consistency of the curriculum. The researcher has good credibility with the coaches participating in the course as a result of his standing within the NSCAA.

This study will examine changes in coaches' efficacy. It will not attempt to investigate how changes in efficacy are brought about by the course or how efficacy will affect coaches' future behavior or performance.

CHAPTER II

REVIEW OF LITERATURE

Coaching education would seem to be a bountiful area for research given how helpful new information in this field may be to athletes and performances. However, contributions to knowledge in this area are limited with little intervention research and a reliance on behavioral and qualitative studies (Gilbert & Trudel, 2004).

The amount of coaching education research published increased recently. Gilbert and Trudel (2004) found the number of articles related to coaching education increased from an average of 1.8 articles per year to over 30 articles from 1998 to 2001. This is encouraging as coaching education research can provide a method to improve athletic experiences and performances.

This chapter will review the literature related to coaching and coach education. The research has been eclectic with many ideas of coaching investigated; thus, this chapter will address many different aspects of coaching and coach education. The first concern is defining coaching. Several authors have come up with definitions. Relevant ideas from these definitions will be presented. Commonalities of knowledge, abilities, behaviors, and functions are discussed in defining coaching. Similarities between coaching and teaching are presented as these similarities have directed some research. The need and purposes for coaching education research is discussed. How coaches learn is germane to coaching education research. Several theories, including Schön and Moon's work, are presented. Current directions in coaching education research are

discussed. Among the directions presented are program effectiveness, coach behaviors, and general coaching education programs. Finally, a discussion of research issues involving coaching and coaching education will be presented

Defining and Understanding Coaching

One might think a good starting point for a discussion of coaching education would be defining coaching. However, coaching as an endeavor is difficult to define – it is a topic that can fall under the umbrella of "we know it when we see it". The largest issue regarding defining coaching is the scope of coaching. Coaching can be done on a volunteer basis, with a commitment of perhaps once-a-week practices and games to a highly lucrative career, involving a great commitment of time and effort. It is an educational task, yet involves other duties and roles including organization and management. Common to most coaching situations is a duty to develop the person outside of sport, a task accepted (to varying degrees) by educators while existing outside the job description of most educators.

The level of coach and the level of athlete can determine the definition of coaching, or at least the function of the coach. As the coach moves from volunteer to paid positions, generally the ability and talent of the athletes rises. Concurrent to this rise is a rise in expectations, both self-imposed by the coach and generated by outside forces. When these rise, the expectations of athletic and competitive success and development similarly rise while the continued goal of personal development of the athlete can remain.

Bowes and Jones (2006) state coaching is "an activity characterized by a series of nonlinear unstable micro-states that emerge from local interactions among intelligent and

adaptive agents trying to improve their local payoff on the basis of limited information" (1995; p. 241). However appropriate, this definition may seem far removed from the playing field. Coaching has been more succinctly defined as "24 hour per day crisis management" (Dorrance, personal communication).

Thus, coaching is a task with a broad spectrum of commitment, duties, and rewards. Fundamentally, it remains instructive and organizational in nature yet the scope can broaden in a variety of areas.

Defining Coaching Through Knowledge and Abilities

Coaching knowledge is very individualized and contextual (Cushion et al, 2003). The type of knowledge found in coaching has been described as phronetic. Phronesis is knowledge existing in the region between theory and application. Hemmestad, Jones, & Standel (2010) have stated this knowledge is an "enhanced blending of academic rigor with ecological practical wisdom" (p. 609). Coaches use a variety of personal experiential knowledge in conjunction with grounded theories to construct an action plan for the myriad of possible situations coaches find themselves and their athletes engaged in during sport.

Côté, Salmela, and Russell (1995) attempted to define a knowledge domain for gymnastic coaches. These authors studied high level coaches in the Canadian gymnastics organization. The factors found to be relevant to coaches' knowledge (and utilization of such knowledge) included competition, training, organization, coach's personal characteristics, athletes' personal characteristics and level of development, and contextual factors. While these factors are numerous, they include many of the duties and

responsibilities typically associated with coaches. After the authors evaluated coaches based on these criteria, coaches were found to agree with results.

Several authors have attempted to define coaching in terms of the competencies found in coaches and coaching (Campbell, 1993; Demers, Woodburn, & Savard, 2006; Douge & Hastie, 1993 Horch & Schutte, 2003). Among the skills utilized by coaches are making ethical decisions, practice planning, analyzing performances, supporting athletes during training and competition experiences, designing a sport program, and managing the sport program and associated peripheral tasks germane to the maintenance of the program.

The National Association for Sport and Physical Education (NASPE) has determined what a coach should know and be able to do. NASPE has outlined 37 standards grouped into eight domains. These domains include knowledge and abilities all coaches should possess. The eight domains are: risk management; growth, development, and learning; training, conditioning, and nutrition; social and psychological aspects of coaching; skills, tactics, and strategies; teaching and administration; professional preparation and development; and injuries prevention, care, and management.

Defining Coaching Through Coaching Behaviors

The ability to synthesize and modify coaching behaviors and knowledge is crucial to successful coaching (Bowes & Jones, 2006). Ntoumanis and Biddle (1999) discuss the motivational climate necessary for successful physical activity. Their work depends upon and further elaborates the ideas of Ames (1992) and Epstein (1989). Ntoumanis and Biddle (1999) differentiate between mastery (task) and performance (ego) orientation.

This pertains to the role of the coach in a holistic sense – rather than sport specific, this line of thinking applies to all coaches. Reinboth, Duda, and Ntoumanis (2004) address coaching in terms of the fulfillment of athletes' needs. These authors discuss these needs in a Basic Need Theory (BNT), a subdivision of Self Determination Theory. BNT lists three needs each athlete must address: first, there exists a need for autonomy; second, athletes aspire towards competence and the ability to bring about desired results; and third, athletes want relatedness and a connection to others. These authors discuss evaluating a coach in a context free of any sport specific knowledge or duties. Rather, the emphasis is on how a coach relates to and uses behaviors to fulfill these needs. These ideas and works share common ground with the responsibilities of a teacher.

Smith and Smoll (1993) define coaching in terms of behaviors such as furnishing evaluative feedback and providing technical instruction. Additionally, much of Smith and Smoll's research (Smoll, Smith, Barnett, & Everett, 1993; Smith & Smoll, 1991; Smith, Smoll, & Curtis, 2007) has focused on coach behaviors. The research included examining the effects of coaching behaviors upon athletes, the development and evaluation of a cognitive-behavioral coach training program, investigating the effects of a motivational climate on athletes' sport anxiety, and enhancement of self-esteem through social support training for coaches. Thus, it would seem these prolific authors feel coaching can be evaluated and defined through behaviors.

Coaching Art versus Coaching Science

Potrac and Jones (1999) have brought to forefront of coaching education discussion whether coaching falls between the dichotomies of art and science. It may be

a science in that we can study observable behaviors by the coach (Smith, Smoll, & Curtis, 1979; Smith & Smoll, 1991; Weiss & Friedrichs, 1986; Westre & Weiss, 1991). One interesting area for further coach education pertains to Smith and Smoll's (1991) finding that coaches less accurately recall their behaviors than their athletes. Educating coaches to better monitor their behaviors may lead to changes in behaviors, and thus changes with their interaction and affect on their athletes. What remains without much study is the effects of the behaviors. Thus, as Trudel and Gilbert (2006) have stated we know more about the science of coaching rather than the art of coaching.

There exists a school of thought that coaching can be a science and thus subject to rational analysis (Woodman, 1993). Others (Bowes & Jones, 2006; Jones & Wallace, 2006) feel personnel issues and interactions play a large role, thus suggesting a differing role of coach from that of an educator. Jones and Wallace (2005) have stated that a rationalistic definition of coaching is not valid. These authors feel the term "orchestration" is a better descriptor as coaches pursue knowledge for action and instrumentation. The many aspects of a definition of the role make understanding coach education and development a difficult and dubious task.

Functions of Coaches

It would seem there are multiple definitions for coaching, depending upon the functions of the specific situation. A broad definition encompassing the possible roles and functions should be a synthesis of many of the ideas previously discussed.

Primary to all coaching is instruction. The instruction may be technical or tactical. Quite often, coaching is a blend, or at least includes varying amounts of these

duties. The degree of tactical or technical instruction is dependent upon the stage of development the performers, the needs of the athletes on a short term and long term basis, the demands of upcoming competition or events, and other relevant purposes.

This instruction by definition requires knowledge of sport, including sport specific knowledge as well as general physiological and psychological knowledge. As these bodies of knowledge develop and grow, coaches' knowledge bases need to grow. An increased knowledge base can result from experience; however, research can aid the coach by bringing new strategies to advance knowledge in a more rapid manner. Thus, there is a continuing education aspect for quality coaches.

A coach must organize. The organizational duties include structuring training sessions; working to implement roles, responsibilities, and goals for athletes; deciding upon priorities and goals for the performers; and many tasks relating to the conduct of a sport program. These ancillary tasks can be as mundane as finding a field or training facility, or as involved as scheduling and budgeting for a program.

The ability to understand and develop personal relationships falls to the coach. Quality coaches must consider interpersonal relationships between performers and coaches. These relationships may be strictly between the coach and the performer. It may include relations within team members and between groups of team members if the coaching involves a team. Smith, Smoll, and Curtis (1979) focused on training coaches through a Coach Effectiveness Training program in an attempt to produce an increased in the number of and quality of positive experiences for young athletes. Smith, Smoll, and Curtis (1979) found through enhancing the relationship skills of coaches, athletes

indicated greater enjoyment in having played for their coach, an increased likelihood of playing their sport in the future, felt their coaches were better teachers of the game (than control group coaches), and obtained more positive relationships with their teammates.

A key element of the relationships between coaches and performers is evaluation. A coach must have judgment – both to gather criticism along with the ability to disseminate the information in the best possible manner. One of these abilities without the other would render the evaluation process irreparably damaged. Evaluating performers requires very specific knowledge of the action being evaluated, a great repertoire of methods to provide evaluation, and finally the ability to choose the best method for providing the information to unique individuals.

As Case (1987) has discussed, novice athletes and teams may require a greater emphasis on relationships and motivation for participation than mid-career performers. The emphasis may shift towards a more task/performance outcome mode as performers become more accomplished and experienced. As players approach mastery of tasks, the emphasis may return to a relations-driven mentality. Coaches must be aware of the stage and situation of performers and teams to fine tune their own performances to best provide for their charges.

It would appear that coaching can best be defined when several factors are known. Knowing the stage, situation, goals, and expectations of the performers can help define the coach by determining the amount of instructor, counselor, organizer, and leader to incorporate. All of these factors are among the duties of all coaches – but the blend varies depending on the requirements of each coaching situation.

We can gather from the multitude of definitions and characteristics of these definitions that coaching exists on a broad continuum. Coaching includes a variety of duties: organizational, administrative, technical, tactical, interpersonal, psychological, and developmental. This can be problematic in directing research, as we see current research take a multi-faceted, multi-fractured approach.

Teaching and Coaching

Teaching and coaching share many responsibilities and duties. Siedentop and Elder (1989) point out that teachers and coaches are experts in their fields. As experts, the authors state that experts see things non-experts don't, experts respond quicker than non-experts, experts have a larger repertoire of responses than non-experts, experts plan differently than non-experts, experts explain their performances differently, experts spend more time planning than non-experts, experts are more linguistic planners, and experts draw more heavily on past experiences during planning than non-experts (Siedentop & Elder, 1989; Jones, Housner, & Kornspan, 1995).

Several authors have drawn upon the relationship between coaching and teaching (Chelladurai & Kuga, 1996; Drew, 2000). This is an inviting perspective to follow, yet there are differences in the task, requirements, and roles of teachers and coaches. This is a helpful direction to pursue but it may not yield the complete picture or definition of coaching as it may only serve to differentiate between the two tasks.

However, several authors point to differences between the two tasks. More than teachers, a large portion of coaching knowledge comes from prior experience (Nelson & Cushion, 2006). Bowes and Jones (2006) discuss the foremost importance of the coach

to identify, analyze, and control variables that affect athletic performances. Bowes and Jones (2006) are in agreement with Nelson and Cushion (2006) when they state that coaches' knowledge is located within the realm of experience; however, these authors (Bowes & Jones, 2006) go further to state coaches need to take better account of the interactive social nature of coaching. Thus, Bowes and Jones (2006) feel the strong influence of social interaction places different values within the coaching job description than within the role of teaching.

Why Coaching Education?

We understand there are an increasing number of young people involved in sport (De Knopp, Engstrom, Skirstad, & Weiss, 1996). Estimates have put the number of young people involved in organized sport programs as high as 41,000,000 (CNN, 2006). These young people come under the influence of coaches. This field of influence hopes to bring about positive ideas and growth. Many authors have found coach education to have a positive impact on young athletes and their experiences (Cassidy, Patrac, & McKenzie, 2006; Hammond & Perry, 2005; Malete & Feltz, 2000; Smith, Smoll, & Cumming, 2007; Smith & Smoll, 1991; Smith, Smoll, & Curtis, 1979).

As the numbers of young people participating in youth sports increases, the need for coaches has likewise increased. It has been estimated there are 3,000,000 coaches in the United States alone (Gould, Giannini, Krane, & Hodge; 1990). Coaching education programs have been found to enhance the experience of young people and characteristics of young people involved in sports programs (Scanlan & Lewthwaite, 1985; Smith & Smoll, 1991; Smoll, Smith, Barnett, & Everett, 1993), yet the majority of coaches do not

receive any formal training (American Academy of Pediatrics, 2001; Gould, Giannini, Krane, & Hodge, 1990). Of coaches involved in university and school programs, it has been estimated that less than 30% have any formal training (Gould, Giannini, Krane, & Hodge; 1990). Thus, coach education and coaching education programs are and will be important features in the development of youth sport programs (Gilbert & Trudel, 1999). In spite of this, coaching education programs as well as literature detailing and describing such programs are varied in their scope while limited in their depth. Coaching education has been criticized for this lack of depth as well as the lack of detail (Bowes & Jones, 2006).

Perhaps the strongest reason for coach education and research was stated by Smith and Smoll (1991). When discussing methods of increasing the chances of positive experiences for young people involved in sport, the authors stated

> It seems clear that the most direct path to achieving this goal is to focus on that point in the 'athletic triangle' (consisting of child, parent, and coach) at which intervention is most likely to have an immediate positive impact, namely the coach or adult supervisor (p. 60).

Malete and Feltz (2000) studied high school coaches and found coaching efficacy improvement through a 12 hour Program for Athletic Coaches Education (PACE). The authors defined coaching efficacy as "the extent to which coaches believe they have the capacity to affect the learning and performance of their athletes" (p.410). Coaches who participated in the PACE program were found to have significantly increased efficacy. Given that coaching efficacy is largely determined by past performances and experiences, athletes' abilities, and perceived social support, this finding offers a method to change

coaches' efficacy that is under their control and not dependent upon outside forces. Additionally, an improvement gathered after a short 12 hour course can be seen as effective from a time management perspective. This leads to the utilization of coaching education programs as a valuable resource for coaches and administrators.

Smith and Smoll (1991) found cognitive behavior training programs helped bring about better coach-athlete relationships as perceived by the athletes. Additionally, the training was found to have a positive impact on social systems that affect young athletes. Coaches attributed improved self-evaluation to training they received. Finally, the training was found to help athletes low in self esteem and proneness to injury through an increased sense of social support. Through other investigations guided by Smith and Smoll (Smith, Smoll, & Curtis, 1979; Smith & Smoll, 1991; Smoll, Smith, Barnett, & Everett, 1993; Smith, Smoll, & Cumming, 2007), these authors represent one of the most focused lines of research in coach education and the impact of coach interventions on athletes. While their work has some limitations (gender, age, team versus individual sport), their work on cognitive behavioral interventions has been enlightening.

While the idea of coach education has intuitive appeal, Kidman (1998) has questioned whether the direction of coach education should focus on developing coaches' relationships with parents and monitoring parental behaviors rather than directing and developing athlete behaviors. This tact of thinking would lead coach education in a very different direction, one not athlete- or coach-driven or directed. The idea has merit but may be best suited for a tangent of current coach education research.

Understanding How Coaches Learn

Understanding how coaches learn is germane to coaching education. Many authors have examined this area in pursuit of helping coaching development programs impact coaches.

Many recognize the influence of experience on learning. Several authors have discussed how experience and reflection on that experience affect coaches. Gilbert and Trudel (2001) state "Reflection is the process that mediates experience and knowledge, and therefore is at the heart of all experience-based learning theories" (p.17). How experience functions as a learning tool or framework is important to understanding how coaches learn. Indeed, reliance upon experience may be viewed as a hindrance to coaching education. Coaches value experiential learning and Nelson and Cushion (2006) state "it is perhaps unsurprising that a large proportion of coaching knowledge and practice has not come from coach education but from personal interpretations of previous experience" (p. 174).

Schön's Model of Learning

The work of Donald Schön (1983, 1987) has been influential in much thinking and regarding how coaches learn. Gilbert and Trudel (1999) state "Schön's theory stands apart from other experiential learning theories because of its focus on the construction of domain-specific knowledge in the context of professional practice. For this reason, Schön's theory may be the most appropriate to use as a conceptual framework to examine how coaches construct knowledge through coaching experience" (p. 2-3).

Schön's (1983, 1987) consideration of reflective thinking has been discussed by several authors (Bowes & Jones, 2006; Gilbert &Trudel, 1999; Gilbert & Trudel, 2001; Knowles, Tyler, Gilbourne, & Eubank, 2006; Nelson &Cushion, 2006). Given the amount of attention directed to Schön, it is worth considering his work. Schön states professionals think in action and incorporate experiences into a repertoire of actions and responses to critical situations.

Schön ideas suggest three types of reflection crucial to coaches' learning. The first of these is reflection-in-action. This reflection occurs during the processes a coach is engaged in during real time. As a coach witnesses his structures and program occur, the coach evaluates what is going on in terms of "Is the action achieving it's desired end?". This is a spontaneous reflection which can be considered to occur during the activity.

The second type of reflection is reflection-on-action. This reflection occurs shortly after the conclusion of the activity being reflected on. Following the conclusion of an exercise, a coach considers whether or not the activity obtained the desired result in terms of learning and progress. This type of reflection occurs between activities and can be used to suggest following activities.

Schön's third class of reflection is retrospective reflection on action. This type of reflection occurs much later after the activity. This period of time can vary, and the reflection can often occur through discussion with other coaches (assistant coaches, colleagues, etc.). Quite often, the action considered has a longer term goal and is less immediate. This type of reflection can address a series of actions or reflect upon the sequencing of actions.

Schön's three types of reflection have been applied to many fields and activities. Reflection-in-action and reflection-on-action have been called learning through experience while retrospective reflection on action has been described as leaning from experience.

Gilbert and Trudel's Model of Coaching

In a later work, Gilbert and Trudel (2001) utilized a case study methodology for six coaches over the course of a season. Gilbert and Trudel (2001) found six components of reflection: coaching issues, role frame, issue settling, strategy generation, experimentation, and evaluation. Each of these topics is discussed within the context of how coaches address these components and how these components prompt reflective thinking. Schön's classes of reflection apply to these components.

Coaching issues involves the generation of new ideas in response to reflection upon previous actions (reflection-on-action). Role frame is the role the coach sees themselves responsible for team actions and consequences. Issue settling is the process of identifying an issues and determining why it is an issue. Strategy generation refers to the development of new ideas to address issues. Experimentation is the attempt to implement these new strategies. Evaluation is the reflection upon the results of the new imposed strategies (reflective reflection on action).

Werthner and Trudel (2006) discuss two ideas of learning based upon the work of Moon (2004). These two theoretical perspectives include networking and brick-building. Networking includes mediated learning situations such as courses and formal learning environments; unmediated learning situations are learner initiated; and internal learning

situations, which include reconsideration and reflection. Of these, unmediated learning situation were thought to be important as the meaningfulness of the material is probably very high. The processes can be thought of in combination or sequence: course, coach, reflect. This suggests a different perspective yet similar in that this perspective incorporates the idea of reflection.

Brick-building can be considered just that: the teacher provides "bricks" of information which the learner uses to build a wall of knowledge. If this concept is considered, Werner and Trudel (2006) note "without instruction, there is no learning" (p. 199).

Coaching development has been discussed in terms of what coaches should know (an acquisition metaphor) and what coaches should do (a participation metaphor) (Trudel & Gilbert, 2006). This perspective may ultimately help in coach education as it delineates a body of knowledge a coach should have – allowing separate development process – while allowing for an applied, "doing" portion of the job. It would fall upon the coach to bridge these two domains, and this may be an unwieldy task problematic to the ideas of Gilbert and Trudel (1999).

Gilbert and Trudel (1999) further considered framing the construction of coaching knowledge in experiential learning theory. In this work, the authors discuss how unexpected fallout resulting from using older, established theories and actions leads to the necessary creation of new ideas, theories, and actions. Learning is complete when the new action brings about an expected result.

Gilbert and Trudel (1999) incorporate ideas from Schön (1983, 1987) and proposed that reflective practitioners frame their roles. The reflective process is problem setting – that is, seeing each situation as unique and demanding a new solution, knowledge is constructed through the development of and experimentation with new strategies, and the reflective process relies on utilizing consequence-free virtual worlds. Gilbert and Trudel (1999) look to Schön (1983, 1987) for a base and expand his thinking and theories to coaching settings.

Knowles, Tyler, Gilbourne, and Eubank (2006) state reflective thinkers should operate on three levels: technical, practical, and critical. Technical reflection refers to thinking or consideration of technical aspects of training the athletes (e.g., number of touches, length of field, what to techniques to train). Practical reflection considers the relationships between the coach and players and staff. Coaches would reflect upon how their actions affect relationships. Critical reflection refers to outside constraints – that is, how do financial limits, organizational rules and regulations (e.g., NCAA laws), and other factors impact training and the program.

Knowles, Tyler, Gilbourne, and Eubank's (2006) study, which examined graduates of an undergraduate coaching program post-graduation, discussed several barriers to reflective thinking encountered by coaches. These obstacles included a lack of time dedicated to reflective thinking, which several coaches found ways to overcome eventually. A second hurdle was isolation – that is, coaches did not reflect with other coaches. This can be attributed to several factors. The primary reasons were lack of coordinated schedules. An additional obstacle was focusing on negative experiences.

Knowles, et al (2006) cite this as not an obstacle to reflection but rather an obstacle to a balanced reflection program. A final obstacle not mentioned by the authors could be the competitive nature of coaching. Coaches may be hesitant to share either positive experiences (for fear of competitors learning new ideas and techniques) or negative experiences (for fear of displaying weaknesses).

Côté, Samela, and Russell (1996) examined the development of knowledge within high performance gymnastic coaches. When interviewing both male (13) and female (4) coaches, the authors found the following components of knowledge: competition, training, organization, coach's personal characteristics, athletes' personal characteristics and level of development, and contextual factors. The authors discussed the unique evaluative process that went on for each gymnast, and the development of a schema for coaching this athlete. This last topic occurs within an individual sport setting. Additionally, Côté, et al (1996) discussed the relationship between these components and how coaches develop these relationships. Future study in this area could include prioritizing the components, and looking into methods to teach components.

The educational needs of elite coaches were investigated by Gould, Giannini, Krane, and Hodge (1990). This study asked elite United States National Team coaches how they developed their style in addition to what further education would be beneficial. By approaching the knowledge base of coaches from what coaches felt was lacking, this study provided a different perspective and insight into coaches' knowledge. Gould, et al found sport psychology and exercise physiology to be the areas in which coaches desired further education.

Potrac and Jones (1999) discussed how coaching education programs and research into knowledge have progressed along bio-scientific lines. These authors state that social components, including understanding the influence and dynamics of coaches' social and occupational worlds, are necessary before full cognition of the coaching process can be claimed. Additionally, the authors question the 'model' approach to understanding how coaches are developed. Further, they question how race and gender may play a factor in coach development. Potrac and Jones (1999) suggest further emphasis on ethnographic data be followed in examining coaches and coaching.

Jones, Armour, and Potrac (2003) offer an interesting insight into the construction of coach knowledge through an anecdotal article discussing how a professional coach obtained knowledge and advanced his thinking throughout his career. Not so much a case study but a "life-story" (p.213), the authors went into great detail examining the career of a professional soccer coach, coaching at the highest levels in England, with an eye towards learning how the coach felt he obtained the knowledge necessary to be successful. The authors felt through their work, the reader should be able "to consider whether our text provides enough thick description (Geertz, 1973) to justify the interpretations we have offered…to experience, however briefly, moments from the life of the respondent…if the paper has served to enhance our understanding of the acquisition and social construction of knowledge in sport coaching" (p. 215).

Bowes and Jones (2006) stated that coaching research and education can be driven by a relational schema. Coaches obtaining knowledge through experience was discussed along with the need for these coaches to take a better account of the interactive

nature of coaching. The chaotic, complex nature of coaching, along with blank spaces in coaching education, is discussed in detail. Bowes and Jones (2006) describe a complexity theory which includes a variety of complex knowledge structures, which can be called upon either individually or in conjunction with other schemas, depending upon situational needs. This idea has potential for addressing coaches' utilization of knowledge but can be awkward to describe. It is similar to Douge and Hastie's (1993) work investigating the ability of coaches to adjust and draw upon a variety of strategies to synthesize new solution for coaching problems. Bowes and Jones (2006) use a vivid picture to describe the theory, likening it to birds in flight, with lower order elements triggering higher order elements which then sequence or arrange the lower order. The organizational strategies lie at the edge of chaos – which brings us back to the definition of coaching offered by Dorrance ("24 hour per day crisis management"; personal communication).

Coaching Education Program Research

Coaching and Coaching Education research has been multi-directional. Among the prominent areas of study are examining specific programs for effectiveness and other variables, investigating coach behaviors and their effect on athletes, non-sport specific coaching instructional programs, and studying how coaches learn and acquire new knowledge.

Research on Coaching Education

The state of current coach education and related programs has seen little in the way of evaluation. Gilbert and Trudel (2004) studied coaching science research

published between 1970 and 2001. In their findings, the authors stated most coach research was looking at the observable behaviors of coaches. The focus of these works dwelled upon the physical actions and statements of coaches, placing these actions and words in various categories. By taking this direction, several salient points are lacking: purpose of the action, motivation of the coach to pursue such action, and the response of the athlete. Additional limitations upon the literature include focusing primarily on team sports, and looking at sport in school settings (especially concerning as many programs exist outside the schools).

Campbell (1993) examined coaching education programs around the world. This yielded several interesting topics. Among these are the different status of coaches and coaching in various countries and sports, the various programs that serve to educate coaches across sports, ethical concerns, knowledge and levels of required knowledge for certification (both sport specific and general), delivery methods, quality control of coaching, and financial incentives and costs. By looking globally, Campbell (1993) highlights commonalities of coaches and their formal development as well as differences in coaching education programs.

In examining specific coaching education programs, it should be understood that a large portion of a coach's body of knowledge results from experience (Campbell, 1993; Gilbert & Trudel, 2001; Nelson & Cushion, 2006). Although there are no global measurements, it should be noted in Canada less than 1% of 600,000 registered coaches complete the first three levels (from five levels) of a coaching certification program (Gilbert & Trudel, 1999). It should also be noted that these figures deal with registered

coaches; there is no firm number of how many unregistered coaches are presently coaching. Gould, Giannini, Krane, & Hodge (1990) asked elite United States National Team coaches how the coaches acquired their style; coaching classes ranked last of 5 factors. Nelson and Cushion (2006) came to a similar conclusion, citing the value of experience and reflection to coaches and the establishment of a body of knowledge. Gilbert and Trudel (1999) state "What practitioners need for improvement in real practice is experiential knowledge" (p. 235). These authors felt three questions regarding coach education deserved merit: 1) Was the course delivered as designed? 2) Did the coach acquire new knowledge? and, 3) Was any change found in the use of course concepts in the field?

Components of Coaching Education Programs

Gilbert and Trudel (2001) detail components of a coaching education program. The authors found six components: coaching issues, role frames, issue setting, strategy generation, experimentation, and evaluation. Their study was limited to a team sport (youth hockey), an age/level (13-14 years old), gender (male athletes), and limited to one coach. These limitations are encountered in much of the literature in this area. The components were developed and established under the influence of Brinkerhoff's (1987) Six Stage Model of Evaluation. Nelson and Cushion (2006) go further in their discussion of developing a coaching certification program to discuss the value of experience and coaches readiness to accept experience as a primary source of education. The authors continue to state three areas for coaching certification program: coaching philosophy,

curriculum, and delivery. These headings encompassed Gilbert and Trudel's (1999) six components.

Haslam (1990) assessed the content and delivery of the theoretical component for the five levels of the National Coaching Certification Program of Canada. Haslam interviewed administrators and instructors of the program to learn how appropriate content was for each level and how effective the delivery was found. Content was found to be appropriate, with some discussion of developing more age- and ability-dependent material for distribution to different levels. Delivery was found to be effective.

McCullick, Belcher, and Schempp (2005) investigated what participants viewed as working most effectively in a coaching program administered by the Ladies Professional Golf Association. Through interviews, the authors found participants in the education program felt a program should have a logical structure, a pedagogical knowledge should be taught (and modeled) by the staff, a knowledgeable staff should present relevant information and content knowledge, and an integration of research in pedagogy and subject matter. The obvious value of inquiring what matters for coaches and instructors helps to bring in an important part of the teaching and learning processes.

Cassidy, Potrac, and McKenzie (2006) used a qualitative approach in examining a rugby coaching education program. This study was limited to eight male rugby coaches. Semi-structured interviews yielded interesting findings. The authors found three themes from the interviews: 1) thinking of the athletes as learners; 2) focusing on the process of coaching; and 3) the value of speaking with other coaches. This last theme occurs

throughout the literature (Gilbert & Trudel, 2001; Jones, Armour, & Potrac, 2003; Knowles, Tyler, Gilbourne, & Eubank, 2006; Potrac & Jones, 1999).

Hammond and Perry (2005) assessed the effectiveness of a soccer coaching course. The authors looked to evaluate coaches' perceptions of the course as well as the performance of the presenters. Through interviews, they found coaches liked the course and felt good about the presenters. However, the authors noted a lack of material pertaining to the craft of coaching. Thus, it was soccer technique heavy and not methodologically driven.

Smith and Smoll have investigated coaching behaviors and coach-athlete relationship through a series of studies. In 1979, Smith, Smoll, and Curtis introduced a cognitive behavior intervention to a group of Little League baseball coaches (a team sport with male athletes, aged 12-14, and male coaches). The authors were interested in learning the impact of the program on the athletes' self-esteem and attitudes. Through the program, "designed to make coaches more aware of their behaviors, to create expectancies concerning the likely consequences of various coaching behaviors, to increase their desire to generate certain consequences rather than others, and to develop their ability to perform desirable behaviors effectively" (p. 60-61), Smith and Smoll educated a group of coaches to monitor and model certain behaviors. The results indicated an improvement in self-esteem and improved attitudes among athletes with previous low self-esteem levels.

Smith and Smoll (1991) examined a behavior intervention for coaches. The authors emphasized two areas: the development of the coach-athlete relationship; and,

injury vulnerability based on life stress, social support, and cognitive behavioral coping skills. The coaching behavior study looked specifically at behaviors of coaches and the relation of these behaviors to coach-athlete relations. To accomplish this goal, the authors developed CBAS (Coaching Behavior Assessment System), a method of tallying coaching behaviors and actions. Smith and Smoll (19991) found that coach-athlete relationships were improved by a cognitive behavioral intervention. This result addresses an important, specific component of coaching.

Self-esteem was studied by Smoll, Smith, Barnett, and Everett in 1993. Coaches trained in social support systems and instructional effectiveness were found to increase self-esteem in their athletes. Additionally, the athletes reported having more fun with no regard to win-loss record. Again, the study was small in scope (8 coaches received training, 10 did not/were control group participants) and worked with Little League baseball. All coaches were male as were all athletes.

Smith, Smoll, and Cummings (2007) investigated the effect of a motivational climate intervention on sport anxiety in young athletes. Coaches in the experimental group were given a 75-minute intervention designed to foster a mastery orientation among athletes. In this study, basketball was the chosen sport. Coaches were primarily male although some females were included (33 males, 4 females). Athletes were of both genders (117 males, 99 females) were selected. Athletes playing for trained coaches were found to have lower performance anxiety levels when compared from pre-season to late season.

Volunteer youth coaches' perspectives on a coach education were examined by Weirsman and Sherman (2005). The authors established focus groups consisting of volunteer youth sport coaches. They found coaches supported coaching education while preferred an informal structure for coaching education. The authors noted problems with their study (small sample size, n=25), the issue of volunteers forming the focus groups (response bias), as well as in many cases the conflicting role of parent and coach

Demers, Woodburn, and Savard (2006) initiated a pragmatic study looking into the creation of an undergraduate competency based coach education. This article examined issues in the creation of a program of study for coaching. The authors detailed the competencies they felt were requisite for a coach and discussed methods of working the competencies into as real a setting as possible, thus addressing the formal setting disliked by volunteer coaches (Weirsman & Sherman, 2005).

Vallee and Bloom (2005) examined how university coaches established successful programs. This study should be noted for its examination of exclusively female coaches. A holistic approach was investigated as coaches sought to develop athletes in a complete, balanced method. It should be noted that these coaches worked with team programs and female athletes. The areas found important to success by the authors were coaches' attributes, individual growth of the athletes, organizational skills, and vision.

Yet another area of interest has been investigating the evaluation of coaches and their behaviors. Aleamoni (1981) studied student ratings of instructors. Aleamoni dispelled several myths regarding student/participant evaluation of instructors using the

teacher/coach relationship and applying these findings to coaches. Aleamoni found participant/student ratings were consistent across time and circumstance. Popularity, or being friendly towards students, did not influence or affect ratings in other areas. The concept that students cannot make good judgments until they have been away from the material and teacher for a period of time was disproven as immediate ratings were consistent with ratings obtained at a much later (several years) time. The results are mixed for finding a correlation between good grades and positive evaluations. Application of these findings to purely coaching evaluations would be an interesting area for future researchers.

Brinkerhoff (1987) examined results obtained from training. Brinkerhoff looked at stages of effective human resource development. The six stages were: Evaluating needs and goals – what is the need? Evaluating human resource design – will it work? Evaluation of operation – is it working? Evaluating learning – was it learned? Evaluating usage and endurance of learning – is it still being used? And evaluating the payoff – did it make a worthwhile difference? Brinkerhoff desired to evaluate training programs through answering these questions.

Rushall and Wiznuk (1985) wanted to examine how to include the athlete in the evaluation of the coaching process. The authors developed an instrument for athletes to evaluate their coach. The authors state, "the best focus of measurement is on teacher characteristics and behaviors" (p.158). By inquiring into the participants' point of view, Rushall and Wiznuk hoped to learn more of what makes a good coach from a different direction than most other researchers.

As seen by the variety of direction these studies take, one can begin to see how coaching education and associated research is difficult to get one's arms around. With the exception of Smith, Smoll, and colleagues, along with Gilbert and Trudel, there are not many focused lines of research. The field is still very wide open and several opportunities for future research are awaiting. Broadening the research to include more female coaches and athletes would be helpful to understanding how coach education can affect coaches and athletes. Inclusion of more athlete responses to coaches and their attendant styles would be beneficial. While the work of Smith, Smoll, and others have looked at objectively tallying coaching behaviors and the responses in terms of athlete self-esteem and attitudes to those behaviors, others may want to examine the results of coach behaviors (and changes in behaviors) in terms of performance and outcomes. There are many directions to pursue.

Summary of Coaching Education Programs

It should be noted most sport specific coach education programs are affiliated with NGB's and not high school programs or organizations. States provide required educational components for coaching high school teams separately from NGB's. For further information regarding educational requirements for high school programs, The National Coaching Report, compiled by the National Association for Sport and Physical Education (2008), has summary information regarding state requirements for athletic coaches. The report is available at www.naspeinfo.org.

Coaching education programs have a positive impact upon youth sport and athletes (Gilbert and Trudel, 1999). They serve as a mediated form of learning, one of

the three methods by which coaches learn as proposed by Werthner and Trudel (2006). Coach education programs are not the sole source of a coach's knowledge. Lyle (2002) has stated "Education and training depends on a mix of formal and informal provision, and understanding how learning and preparation is taking place is important in analyzing practice" (p. 275-276).

A coaching education program has been labeled an acquisition metaphor by Werthner and Trudel (2006). Coaches learn through this acquisition metaphor and through experiences as a player and coach, described as a participation metaphor. Werthner and Trudel (2006) went further to state that their research found "formalized learning venues are not valued by coaches as much as their day-to-day learning experiences in the field" (p. 198-199).

Moon (2004) has put forward several ideas regarding learning that apply directly to coaches (as well as other fields). Moon has discussed two perspectives of learning. The first of these two is the "network" in which learning consists of a string or net of ideas. The "network" includes knowledge from all sources, and these sources may be inter-connected through the association of the learner. Each piece of knowledge comes tagged with situational factors. Learning can take place via many different methodologies.

A second perspective is the "brick wall" theory in which learning consists of gathering as many "bricks" of knowledge and facts as possible from instructors and instruction. The NGB's and affiliated bodies are responsible for selecting and supplying the "bricks". This would include the selection of what "bricks" are relevant and

important for the coach, as well as where (or for what stage of learning) each "brick" is to be placed. Here learning is considered to be a passive process where the learner collects "bricks" from instructors and assimilates them. The active process for the learner is to transfer settings; where the bricks are pierced together in a way so that the coach may apply the knowledge from the "bricks". The majority of coaching education programs could be considered using the "brick" construct.

Werthner and Trudel (2006) offer a perspective in which a coach learns in three situations: a mediated situation in which the coach is provided knowledge via an instructor; an unmediated learning situation, in which the coach reflects upon experiences with other coaches; and an internal learning situation in which the coach reflects upon experiences independently and chooses what to learn. Several coaching programs (specifically the NSCAA soccer Master Coach Program and the USA Equestrian NGB via a logbook) seek to offer coaching education programs which combine these situations either by incorporating time within the program to permit reflection among coaches, or to develop mentors or sponsors with whom coaches regularly consult.

Review of Coaching Education Programs

Forty-eight sports were examined in the following. The rationale for selecting a sport selected were popularity of the sport, a recognized Olympic NGB, and a host website for the NGB of that sport. All sports investigated are included in table 1 (see Appendix A). Among the characteristics of sports included in this examination are team and individual sports, recognized professional competitions and leagues, recognized Olympic sports, and varying levels of popularity and participation.

Once a sport was selected for inclusion, a search for coaching education programs began. This process could be likened to an internet game of hide and seek. For many sports, finding information regarding coaching education programs was a difficult task. With a large number of sports, only a coach or member of the sporting association with a high level of commitment and determination would find information regarding coach education for that sport. This in and of itself is discouraging. While a few sports placed coaching education in a highly visible position upon their website, the low priority given by many sport associations and organizations assigned to presenting coaching education front and center among topics on a website indicates a lack of emphasis on coach education.

This review includes a variety of sports. Individual sports such as tennis, wrestling, and golf are included alongside team sports such as soccer and hockey. Coaching programs for sports as popular as soccer and American football along with sports of lesser popularity such as water skiing, field hockey, and archery are discussed. Older, more established sports such as track and field are reviewed beside more recent sports such as snowboarding. Many sports have extensive, thorough coaching education programs. Other sports have less emphasis on coaching education, and a few sports lack any type of coaching education. A listing of sports included in this review is presented in Appendix C.

There was no particular rationale for inclusion (or exclusion) other than stated earlier. The technology available encourages NGB's to host at least an introduction to

their respective coaching education programs on a website. Most sport NGB's (and all sports included here) have a website for their sport.

The website for sports and their NGB's is presented in Appendix C. The majority of these coaching education programs were found by searching the respective sport website. In a few cases, the associated coaching programs and associations sponsoring the programs were known to the author. All sources are found online, although the coaching education program may not be offered online but rather through more traditional means (classroom, practical arena, or outsourced to other locations/organizations).

Appendix C summarizes the availability of coaching education programs offered by each sport. The visibility of any coaching education program, along with the ease of locating the coaching education program, is listed in the "Coaching Education Promoted" row. This characteristic was felt necessary to any description of a coaching education program as it indicates the value a sport (and the NGB) places upon coaching education. The degree to which coaching education is promoted on the website exists along a continuum from no readily observed information to pull down menus to schedules, levels, or a separate page for coaching education websites. As with many of the characteristics discussed regarding coaching education programs, there exists a broad spectrum of promotion. A lack of promotion is distressing several reasons: a lack of emphasis; the difficulty for registered member coaches of the sport association to locate and thus utilize coaching education services; and the difficulty for any visitor to the sport site to learn how to advance the knowledge of coaching. While several sports failed to promote

coaching education programs, it should be noted that many provided clear emphasis and direction for coaches. USA Hockey provides coaching education program information along with several video tips for member coaches. USA Field Hockey provides a clear overview of material required and taught at each level. The Professional Golf Association provides links to job placement services along side program information. USA Racquetball offers video clips of rules, "Tips from the Pros", several instructional videos, and a summary of their coaching education program.

The awards granted upon successful completion of coaching education programs differ. These include certification, the most frequently found credential; licenses; and diplomas. At first glance, the differing terms may seem simply semantic; however, in several situations the different credentials carry different meanings. In soccer, the US Soccer Federation coaching education programs licenses coaches; this permits coaches a license to coach various levels of nationally or regionally affiliated representative teams. The National Soccer Coaches Association of America grants diplomas signifying achievement of a level of knowledge. This difference may seem esoteric – until a coach requests a national team assignment.

Many sports presented a rationale for coaching education as a pre-requisite for coaching regional and national select teams. While this may be understood by those within a sport, the justification is not clearly presented on websites and other information venues.

The majority of coaching education programs consists of different levels. The levels progress as the level of the coach progresses. Number of levels range from a

single level to six levels for several sports. Additionally, different paths for different goals are features of several sports. The most notable example of different career paths is golf with 19 fields, ranging from retail to course management to broadcast journalism to professional instruction.

One characteristic not readily seen was a continuing education component or requirement. Coaching is always evolving. New techniques and ideas continually arise. As athletes change and develop, coaches and coaching develop along similar lines. It would stand to reason coaches should stay abreast of newer ideas (as should all educators). Despite this, many websites did not offer continuing education for coaches. It may be considered coaches learn new ideas and techniques through their craft; this is true. However, coaches need to learn new concepts through more effective methods rather than tacit means.

Volleyball and soccer (United States Soccer Federation) insist upon a coach obtaining Continuing Education Units (CEU's) in order for the coach to maintain current credentials. Various opportunities exist for coaches to obtain these CEU's: coursework, seminars, and clinics.

It would appear from this investigation that continuing education is an area coaching programs need to address. Professional development is a key ingredient for the health of any discipline and occupation. In addition, it would serve the sport organization to have member coaches pursue continuing education to generate revenue as well as maintain relationships with member coaches. A few sports offer permanent credentials; however, even fewer offer or require continuing education. Sports with continuing

education include cycling, equestrian, rowing, sailing, shooting (must only show proof of continued coaching), skiing, soccer (USSF only), swimming, and volleyball. Reasons against continuing education are plentiful: coaches are too busy coaching, there are prohibitive costs, coaches learn by coaching; and many others. However, the development of coaches for the good of the sport and athletes would outweigh the negative factors.

A priority for coaches undertaking a coaching education program is time involved in the program. Several sports list time commitment for each level of their program. Time commitments can range dramatically, from a 4.5 year program in golf management to a 2 hour course for parents and volunteer coaches. Given the broad spectrum of programs, it is hard to generalize or give an approximate picture of time expected for each level of a coaching education program. A few examples may help facilitate an understanding of the ranges encountered. The majority of introduction (or level 1) programs require 1 day or less. Sailing is a notable exception as 40 hours over 4 days is expected for a level 1 course. Badminton requires 100 hours for a level 4 program. Archery expects 6 days for their level 4 program. The NSCAA (soccer) requires 1 year of collected activity (log, projects) for a Master Coach diploma. Fencing requires an exam and a demonstration before a panel.

These are a few examples of the variety of requirements for levels of coaching education attainable. As can be seen from the previous review or by reading through Appendix C, there exist few commonalities among sport coaching education programs time commitment.

As technology has developed, several coaching education programs have begun to utilize these advances. The Football Association website from the United Kingdom offers a multitude of online education programs for coaches (http://falearning.thefa.com/docent/bin/docentisapi.dll/lms,thunder,2151/?CMD=LOGIN&file=frameset.jsm).

The online opportunities are a positive step in that they permit coaching education to become available to coaches all over the world without incurring travel costs, schedule conflicts, and others factors prohibitive to more traditional offerings. A coach may learn at times convenient to the coach's schedule. These positive factors are fairly obvious.

The disadvantage of online or remote coaching education programs are the elimination of shared reflections with other coaches, similar to Werthner and Trudel's (2006) unmediated learning situations. The lack of shared experiences and reflections may inhibit learning as well as degrade the experience of a coaching program by eliminating the social interaction among coaches during which much of the shared reflection takes place. Table 1 lists coaching education programs which offer online course work. In several sports (American football, biathalon, bowling, cycling, fencing, figure skating, gymnastics, shooting, ski and snowboard, squash, taekwondo, tennis, volleyball), at least partial offerings are provided online.

For many of these sports, part of coaching education is out-sourced to other non-NGB affiliated organizations such as the American Sport Education Program. Of the sports listed in the previous paragraph, American football, biathalon, shooting, ski and snowboard, squash, and volleyball utilize ASEP courses for their coaches. The ASEP

programs are offered online and in classroom settings. Other out-sourced coursework comes from the Red Cross, and in a singular case, selected colleges and universities which offer a golf management program certified by the Professional Golf Association.

Regarding the curriculums, much of the material is sport specific. This makes sense. However, there are several disciplines within sport science which are applicable across sports. Sport science components are offered in archery, biathalon, bowling (sport psychology only; at all levels), cycling (in webinars), diving (first aid only), equestrian, golf, gymnastics, rowing, sailing, shooting, ski and snowboard, soccer, softball, speed skating, squash, swimming, synchronized swimming, track and field, triathalon (optional), volleyball, water skiing, weightlifting, and wrestling.. It is encouraging to find over half of sports included in this report offering sport science components within their respective coaching education programs.

Given the emphasis placed on sport (and more specifically, on results and liability within sport), it is surprising to find such an inconsistency across coaching education programs. As sport advances, coaching education should progress along similar lines. Technology advances should promote offerings online, most likely in domains across sports such as physiology, psychology, nutrition for performance, and other sport sciences.

One need may be for an over-seeing administration body to coordinate these modules. Such a body may be within sport, such as the US Olympic committee, or it may be private, such as the American Sport Education Programs. As sports become more specialized and the NGB affiliated programs become narrower, the need for such an

overseeing body may become more apparent. Regardless of the means, the continued need for coaching education programs will remain.

Issues in Coaching Education Research

Limitations to coaching education research include the general use of questionnaires (although more use of interviews and observations has been noted in Gilbert and Trudel's 2004 review of literature) and a lack of systematic studies. The focus of the majority of coaching research has been on the behaviors of coaches (Gilbert & Trudel, 2004). Ronald Smith and Frank Smoll have conducted research primarily focused upon coaches' behaviors. This type of approach may be due to a similar approach to research involving the teaching of physical education. While their work has been somewhat limited in scope, these authors have been consistent and involved in a line of research over several years. Observational research has been predominant over intervention research. Smith and Smoll have investigated interventions, but few authors have followed in their tracks. This lack of intervention research may be due to the deficiency of a foundation of explanatory and descriptive research.

Beyond Smith and Smoll, few researchers have produced an evolving line of research in the area of coaching education. With the majority of research being "one-shot", establishing a progression of programmatic research has been difficult. As more is learned from coaching research, a more consistent series of authors can pursue further investigations based upon previous research. As Trudel and Gilbert have stated "coaching research still has not progressed beyond the formative stage" (p.525).

Researchers have called for more ecological studies that include a wider range of coaches' contexts involving coaching. Coaching research has primarily focused upon investigations revolving around the head coach exclusively (Gilbert & Trudel, 2004). This perspective is problematic in part due to the high numbers of male head coaches. Research involving head coaches, assistant coaches, officials and referees, athletes, and social support network members (including parents) would be beneficial to all concerned parties (Bengoechea & Johnson, 2001; Jones, Armour, & Potrac, 2002; Kahan, 1999; Lyle, 2002).

Several authors have questioned the predominance of school sponsored sports in coaching research. School sponsored sports lend themselves to research as there is structure lacking in club sports. However, club sports are dominant in countries other than the United States (DeKnopp, Engstrom, Skirstad, & Weiss, 1996; Kahan, 1999). Thus, the coaching research may not truly reflect experiences for many coaches and athletes.

Summary

After considering the coaching education research available, there appears a lack of material addressing the effectiveness of coaching education. Among the current issues are the superficiality of coaching research, the lack of consistent focused lines of research, the scarcity of research including the full range of coaches and settings, and the lack of examining the effectiveness of coaching education programs. For coaching to improve, further investigations are needed. Do coaching education programs make a difference? Do coaches improve their coaching competencies due to an established

coaching education program? Do coaches perceive the program effective? The results will advance understanding of coaching education and may lead to improvements in coaching education programs.

CHAPTER III

METHODS

The objective of this study was to examine the effect of the successful completion of the National Diploma course offered by the National Soccer Coaches Association of America (NSCAA) upon coaching efficacy in the four areas of character building, motivation, technical instruction, and game strategy. Additional information regarding coaches' evaluation of the impact of the course and its content was gathered as well.

Within the sport of soccer, coaching education is provided by two organizations. The NGB for soccer is the United States Soccer Federation (USSF). The USSF offers coaching licenses (A through E, with A being the most advanced). The NSCAA offers diplomas for residential courses (Master Coach through National, with Master Coach being the highest level offered). The NSCAA has issued approximately 11,500 National Course diplomas (Tipping, personal communication). Given the amount of coaching education available and the number of coaches being educated, are these courses effective? This research addresses this question as a step towards improving coaching through education programs

Research Question

The overall research question was: Do soccer coaches who complete the National Soccer Coaches Association of America (NSCAA) National Diploma Coach Education Course improve their coaching efficacy as assessed by self-ratings ratings?

Sub-problem 1: Do soccer coaches who complete the NSCAA National Coaching Course improve coaching efficacy for character building?

Sub-problem 2: Do soccer coaches who complete the NSCAA National Coaching Course improve coaching efficacy for teaching of technique?

Sub-problem 3: Do soccer coaches who complete the NSCAA National Coaching Course improve coaching efficacy for teaching game strategy?

Sub-problem 4: Do soccer coaches who complete the NSCAA National Coaching Course improve coaching efficacy for motivating players?

An additional exploratory question was: How do coaches evaluate the content of the course?

Participants

The primary participants were soccer coaches who enrolled in and successfully completed the NSCAA (National Soccer Coaches Association of America) National Diploma Coaching courses. Coaches enrolled in the course were youth club, high school, college, and recreational soccer coaches. Many coaches enrolled in the NSCAA course are in the early portion of their coaching career with approximately 6 years of experience (Tipping, personal communication). A shortcoming within the NSCAA is the lack of specific background information on coaches enrolled in the NSCAA courses. Coaches were asked to examine their own efficacy as a coach within the four specified domains prior to and following the course.

The NSCAA conducts courses at several sites throughout the year. Sites included Wofford College, Spartanburg, SC (49 coaches enrolled in National Diploma course, 38

coaches participating in study); Regis College, Denver, CO (41 coaches enrolled in National Diploma, 8 coaches participating); Amherst College, Amherst, MA (52 coaches enrolled in National Diploma, 26 coaches participating); San Francisco State University, San Francisco, CA (48 coaches enrolled in National Diploma, 1 participating); Bloomsburg State Univ., Bloomsburg, PA (65 coaches enrolled in National Diploma, 22 coaches participating); Elmhurst College, Elmhurst, IL (50 coaches enrolled in National Diploma, 23 coaches participating); and Wake Med Soccer Park, Cary, NC (28 coaches enrolled, 3 coaches participating).

The NSCAA has conducted the National Coaching Course since 1983. During this time, approximately 11,500 coaches have received their National Course Diploma from the NSCAA (Tipping, 2009). The course adheres to a curriculum designed along the lines of the German Coaching methodology. The curriculum has not undergone major changes since the advent of the program. The NSCAA Director of Coaching Education is at each site overseeing each course. The instructors have been selected by the NSCAA for their understanding of the coaching process. This small staff has received annual training in January prior to the year's educational offering. Thus, a high level of consistency regarding the information and the distribution of the curriculum has been maintained throughout the courses.

Measures

Coaching competencies were measured by the Coaching Efficacy Scale (CES; Feltz, Helper, Roman, & Paiement; 2009). Coaches' evaluations of the course were measured using ratings and open-ended questions. Coaches also completed demographic

measures regarding gender, age, years of experience coaching, ages of players coached, genders of players coached, and coaching situation (club, high school, college, or professional).

Demographic Measures

In addition to the competency measures, demographic information from the coaches was collected prior to the start of the courses. Coaches enrolled in NSCAA courses have various ages, coaching experiences, playing experiences, and coach at various levels of ages and abilities. Thus, the demographics requested included gender, age, ethnicity, gender of athletes coached, coaching role (High School, college, club/youth, or professional), age of athletes coached, and years of experience coaching. Coaches were also be asked the purpose for taking the course and their expectations for the course.

Coaching Efficacy Scale (CES)

Prior to and following successful completion of the course, coaches completed the Coaching Efficacy Scale (CES) (Feltz, Helper, Roman, & Paiement; 2009). Self-efficacy has been found to be an important aspect of teaching effectiveness (Feltz, Chase, Moritz, & Sullivan; 1999). Feltz, et al. went on to say "just as teaching efficacy is perceived to be a powerful variable in teaching effectiveness, so too should coaching efficacy be a powerful variable in coaching effectiveness" (p. 765). The CES measures efficacy in four dimensions: character building, motivation, technical instruction, and game strategy. Coaches addressed their abilities in coaching motivation, game strategy, technical instruction, and character building. The combination of these measures were considered

as they relate to a coach's overall effectiveness and competency (Myers, Wolfe, Maier, Feltz, & Reckase, 2006).

The CES measures coaches' perceptions of their competencies in four domains: character building, motivation, technical instruction, and game strategy. These qualities were selected based upon the *National Standards for Athletic Coaches* (National Association for Sport and Physical Education, 1995). Myers et al. discussed their psychometric findings in 2006. Regarding internal reliability, Myers et al. found motivation competency section had a Cronbach's α rating of .90, game strategy competence had a rating of .87, technical competence received a rating of .85, and character building competence had a rating of .82. Myers et al. (2006) reported a reliability of separation coefficient of .75. The reliability of separation includes the elements with extreme and non-extreme measures; thus the components were judged to be acceptable indicators of satisfaction. Point reliability estimates describe how reliable, on average, the slopes of the least square regression lines were found to be separately for each team. The point reliability estimate for team satisfaction means was found to be .86. In this piece, Myers et al. (2006) found these evaluations had a moderately large positive relationship with satisfaction with their coach within a team. This was in line with Horn's (2002) ideas regarding athletes' evaluations of their coach's competencies affecting self-perceptions and attitudes. Thus, validity was confirmed. The CES is in Appendix B.

Evaluative Measures

A series of questions from the work of Hammond and Perry (2005) were used to assess the organization, suitability of content, and workload of the course. In addition, coaches were asked:

What were the three most important things you got from the course?

In what 3 ways will your coaching change as a result of this course?

Procedures

All coaches who were participating in the NSCAA National Diploma course were contacted prior to the course commencement. Access to the coaches was granted by the NSCAA. Coaches agreeing to participate were informed of the purpose and methods of the study. Participants for this study were obtained from coaches enrolled in the NSCAA National Diploma courses. Coaches were contacted prior to the start of the course via email addresses obtained from the NSCAA pre-registration lists.

An initial email was sent 1-2 weeks prior to the beginning of each course to inform coaches of the study's purposes and requirements for participation along with an informed consent form. Once a coach agreed to participate, the coach was sent a link directing the coach to the survey site containing the Coaching Efficacy Scale (CES), open-ended questions, and demographic measures. Coaches were identified by their NSCAA member number. Additionally, the coach was informed of a follow-up survey. The follow-up survey included a second CES as well as other questions.

The overall timeline for data collection follows:

TIME: pre-course: approximately 1 week prior to course;

EVENT: Coaches pre-registered for the course were contacted to seek participation via email describing the study's purpose and requirements; Coaches agreeing to participate were forwarded a link to a website containing the CES and demographic measures; coaches agreeing to participate completed those prior to the course;

TIME: Course;

EVENT: Coaches complete the course;

TIME: post-course: within approximately 1 week after course is successfully completed by coaches;

EVENT: Coaches who have successfully completed the diploma course were sent email prompts asking them to complete a second CES and the evaluative measures. Coaches complete these instruments.

Analyses

Descriptive analyses (mean and standard deviation) were used with demographic information to develop a profile of coaches. Variables of interest used to develop this profile will include gender, years of experience coaching, level of coaching, and coaching situation (club, High School, college, or professional).

The research problem is addressed by comparing pre- and post-course coach efficacy by CES responses. Repeated measures analyses (MANOVA) with follow-up univariate analyses will be used to determine pre and post differences in the four areas of coaches' competencies on the CES. If the MANOVA revealed significant changes, further univariate analyses were examined to determine which of the four competency domains changed significantly.

For the evaluative measures, descriptive analysis (frequencies, means, and standard deviations) will be used with the ratings for course organization and content from the Hammond and Perry (2005) measure. With open ended question responses, coaches were asked to list the three most important things gained from the course as well as three ways their coaching would change as a result of the course. Responses from coaches were grouped and indexed. Groups were checked for homogeneity

CHAPTER IV

RESULTS

The purpose of this study was to investigate whether a coaching education program affected coaching efficacy. To address this purpose, coaches were questioned regarding their beliefs of their competencies in four areas: Game Strategy, Technical Instruction, Motivation, and Character Building before and after completing the National Diploma coaching education program offered by the NSCAA. In addition, coaches were asked what three things they expected from the course; to evaluate the organization, assessment, and content of the course; three things from the course impacted their coaching and ways their coaching would change as a result of the course. Coaches completed questionnaires prior to beginning the course and completed a second survey following the course.

Of 378 coaches participating in the National Diploma course, 142 coaches responded to the pre-course survey. From the 142, 122 questionnaires were completed and used for pre-course measures. Of 69 coaches responding to the post-course questionnaire, 35 were acceptable for use in pre- and post-course comparisons.

Participant Information

Coaches attending the NSCAA National Diploma courses are overwhelmingly male (84.9%) and Caucasian (88.6%) based upon pre-course responses. Other ethnic groups identified by coaches completing the pre-course survey were Latino/Hispanic (4.9%), Black/African American (3.3%), and Asian (0.8%) with 2.4% identifying

"Other". Coaches were predominantly 25-30 years old (32.8%). Other age groups represented were younger than 25 (16.8%), 31-40 years old (25.6%), 41-50 years old (20.0%), and 51-60 years old (4.8%).

Coaching Experience

Coaching roles are predominantly for clubs with nearly half (48.8%) of all coaches identifying coaching boys clubs as a role fulfilled. This was followed closely by coaching girls clubs (40.7%). High School Boys (32.5%) and High School Girls (26.8%) followed club coaching roles. Other roles included College Women (20.3%), College Men (15.4%), Middle School Boys (11.4%), Middle School Girls (11.4%), and Other (5.7%). It should be noted coaches could select more than one role as coaches often have more than one team they are responsible for coaching.

Approximately half (49.2%) of all coaches worked with males and females as opposed to coaching exclusively males (27.8%) or female (23%) athletes. Regarding age of athlete coached, most coaches selected 12-14 years old (42.9%) and High School (42.9%). Coaches with players 9-11 years old (34.9%), 15-17 years old (33.3%), and College (31.7%) followed, with 6-8 years old (13.5%), 18-20 years old (8.7%), younger than 6 years old (4.8%), and other (4.0%). Again, coaches could select more than one category. Most coaches had between 3 and 5 years of experience (30.3%), and 25.7% had been coaching between 6 and 8 years. Surprisingly, almost 1 in 5 coaches (18.3%) taking the course and completing the pre-course survey had been coaching more than 12 years.

Course Expectations

Coaches were asked to list three reasons for taking the course. The vast majority of coaches (96.8%) indicated their purpose for taking the course was to enhance coaching skills; 34.1% stated the course was required to advance their coaching career, while 8.7% took the course to maintain their current position; and 3.2% indicated another purpose for taking the course. Coaches could select more than one purpose for taking the course.

Pre-Course Efficacy of Coaches

TABLE 1: DESCRIPTIVE INFORMATION FOR PRE-COURSE COACH EFFICACY

	Mean	Standard deviation	Number of items	Item average
Motivation	56.93	8.12	7	8.13
Game strategy	52.83	8.80	7	7.55
Technical Instruction	48.19	7.45	6	8.03
Character Building	34.92	4.18	4	8.37

The CES assesses coaching efficacy in four domains: Motivation, Game Strategy, Technical Instruction, and Character Building. Table 1 provides means for each of the four domains. Each question asked coaches to rate from 1 (weakest) to 10 (strongest) their belief in their ability to perform tasks related to motivation, game strategy, technical instruction, and character building. The means are the average total of responses for seven game strategy, seven technical instruction, six motivation, and four character building items. The means of each of the four domains for coaches' responses to the CES

prior to the course are in table 1. Motivation refers to a coach's ability to motivate players towards a goal; Game Strategy refers to a coach's ability to provide effective ideas leading up to and during a game, including being able to change plans as a result of situations occurring during a game; Technical Instruction refers to a coach's ability to provide correct information regarding a skill or task; and Character Building refers to a coach's ability to develop the person as well as the player. Each item was scored on scale from 1 to 10, with 1 being "Not at all confident" and 10 referring to "Extremely confident". Thus, the mean Motivation item score was 8.13; Game Strategy item mean was 7.55; Technical Instruction item mean was 8.03; and Character Building item mean was 8.37. All scores indicate a high baseline level of confidence in coaches. High baseline CES scores were also reported by Campbell and Sullivan (2005) in their study of coaching efficacy and coaching. Given the pre-course self-ratings, coaches indicate a high level of confidence in their ability to develop players outside of sport as well as motivate their players. Self-ratings for Game Strategy and Technical Instruction, while not as high as Character Building and Motivation, also indicate a high level of confidence.

TABLE 2. CORRELATIONS AMONG CES DOMAINS OF PRE-COURSE COACH RESPONSES

	Motivation	Game strategy	Technical Instruction	Character Building
Motivation	1			
Game strategy	.673**	1		
Technical Instruction	.668**	.868**	1	
Character Building	.696**	.431**	.499**	1

NOTE: ** correlation is significant at the $p < 0.01$ level

Correlations among the four domains of motivation, game strategy, technical instruction, and character building are given in table 2. All domain scores were positively and significantly correlated. As might be expected, Character Building displayed the lowest correlation to other domains (although still significant).

Comparison by Gender and Experience

TABLE 3. DESCRIPTIVE STATISTICS FOR PRE-COURSE CES BY GENDER

		Motivation	Game strategy	Technical Instruction	Character Building
Male	M	56.52	53.18	48.11	34.79
	(sd)	(8.38)	(8.96)	(7.47)	(4.43)
Female	M	56.82	50.30	46.53	34.47
	(sd)	(6.77)	(8.86)	(7.95)	(3.08)

Male and female coach descriptive measures for each of the four domains (motivation, game strategy, technical instruction, and character building) from all coaches completing the pre-course survey are listed in table 3. Mean scores are average totals for seven game strategy, seven technical instruction, six motivation, and four

character building items. Each item was scored from 1 (weakest) to 10 (strongest). Coaches completing pre-course questionnaires prior to the National Diploma course were predominantly male (92) rather than female (17). MANOVA testing for differences between male and female pre-course scores revealed no overall significant difference , F (4,104) = .909; partial eta squared = .975, and univariate tests revealed no significant differences for any of the individual domains between male and female coaches pre-course scores.

The National Diploma course is the introductory residential course for the NSCAA. Thus, the majority of the coaches enrolled may be expected to possess few years of experience coaching. However, a large number (20; 18.35%) of coaches completing the pre-course questionnaire possessed more than 12 years experience. This was unexpected as coaches with this amount of experience may have been thought to already have taken the course or felt such a course was not necessary given their level of experience. The smallest number of coaches (10; 9.17%) appeared in the group with less than 2 years experience. Few coaches with less than 2 years may be expected as coaches may not wish to commit to the expense and time of the course until after they have gained some experience. This reasoning may explain the group with 3-5 years experience being the largest group (33; 30.28%). Descriptive statistics by experience level (less than 2 years experience n=10; 3 to 5 years experience n=33; 6 to 8 years experience n=28; 9 to 11 years experience n=18; 12 or more years experience n=20) are given in table 4.

TABLE 4. DESCRIPTIVE MEASURES FOR PRE-COURSE CES BY EXPERIENCE LEVEL

		Motivation	Game Strategy	Technical Instruction	Character Building
≤ 2 years experience	M (sd)	55.60 (6.9)	52.00 (2.84)	47.20 (2.39)	34.80 (1.35)
3-5 years experience	M (sd)	55.67 (7.36)	53.76 (1.56)	48.03 (1.32)	34.06 (0.74)
6-8 years experience	M (sd)	56.50 (7.37)	50.36 (1.71)	46.21 (1.43)	35.07 (0.81)
9-11 years experience	M (sd)	55.45 (9.57)	52.28 (2.11)	48.22 (1.78)	34.39 (1.01
≥ 12 years experience	M (sd)	59.6 (8.13)	55.15 (2.01)	49.90 (1.69)	35.70 (0.96)

There were no significant differences among the groups based upon level of experience, F (16, 309.20) = .694; partial eta squared = .985. This is surprising as coaches with more experience may be expected to have higher levels of efficacy regarding their ability as coaches. This result held overall as well as for each domain.

Pre-and Post-Course Comparison of CES Scores

Pre-post comparison for the 35 coaches who completed both pre-course and post course surveys addresses the main research question. The 35 coaches completing the post course survey was similar to the larger group completing the pre-course survey: 32 (91.4%) male coaches, 3 (8.6%) female coaches. Two coaches (5.7%) had 2 or less years

of experience, 11 coaches (31.4%) had between 3 and 5 years of experience, 10 coaches (28.6%) had between 6 and 8 years of experience, 5 coaches (14.3%) had between 9 and 11 years of experience, and 7 coaches (20.0%) had 12 or more years of experience.

TABLE 5. PRE- AND POST-COURSE MEASURES FOR CES DOMAINS (mean (standard deviation))

		Pre-course	Post-course	Univariate F	p	Partial eta squared
Motivation	M (sd)	55.89 (8.71)	59.06 (7.65)	8.57	.006	.205
Game Strategy	M (sd)	52.40 (8.26)	56.91 (8.32)	14.60	.001	.300
Technical Instruction	M (sd)	48.80 (6.97)	51.69 (5.72)	5.81	.021	.146
Character Building	M (sd)	35.43 (4.07)	36.23 (3.16)	2.02	.164	.056

Descriptive information for pre- and post-course scores along with the univariate F's, p-values, and Partial eta-squared for CES domains are given in table 5. All CES scores increased from pre-to post-course with Game Strategy showing the most gain (4.51)

In comparing the four CES scores, a significant multivariate difference was found between pre-and post course scores, $F(4, 31) = 3.945$, $p < .01$ partial eta-squared = .337, indicating a positive change in coaches CES ratings. These results answer the primary

research question: Do coaches who complete the National Soccer Coaches Association of America (NSCAA) National Diploma Coach Education Course improve in their competencies after successfully completing the NSCAA course as contrasted with their competencies prior to the course? It appears the course brings positive change in overall coaches' efficacy ratings.

Univariate analysis revealed positive significant differences between pre-and post-course CES measures for the Motivation, Game Strategy, and Technical Instruction domains. Thus, the hypotheses associated with the sub-problems addressing changes in domains has been supported for Motivation, Game Strategy, and Technical Instruction domains were supported. No significant effect was found for Character Building. The overall mean for Character Building was lower than other domains. This is due to fewer questions addressing Character Building than other domains. The mean score for Character Building was greater post course than prior to the course; however, the pre-course Character Building score was high and the pre-post difference was not significant. Thus, soccer coaches who complete the NSCAA National Coaching Course reported that they become more competent in teaching of technique, game strategy, and motivating players. The differences found between pre-and post course ratings highlight the effectiveness of the coaching education program. These results point towards the ability of a coaching education program to bring about positive changes in coaches' confidence in their abilities to be an effective coach.

Post-Course Evaluation

Coaches were asked to list the three most important things learned from the course. A total of 47 coaches responded with 45 completing the question. The 47 respondents for post-course evaluations is greater than the 35 coaches completing the pre- and post-course CES instruments due to matching pre- and post-course participants. These coaches provided 130 things learned from the course (several coaches listed fewer than 3 things). Evaluations asked coaches for lists of three ways their coaching will change as a result of the National course as well as three most important things obtained from the course. From these lists, responses were grouped into themes. The leading theme from these responses was Methodology. Coaches indicated observing and learning from the NSCAA and the staff utilizing a "Coaching in the Game" methodology would impact their coaching greatly. "Coaching in the Game" involves coaches selecting and coaching a topic during the run of the game during a training session. Of the 130 responses, 23 cited Methodology among the most important factors derived from the course. The second most important theme was Networking and Establishing Contacts. This was mentioned in 15 of the 130 responses. Among other themes cited by coaches were Drills and Exercises (13 citations), Psychology/Confidence (13 citations), Tactics (12 citations), Organization (10 citations), and Knowledge (8 citations). Tactics and Knowledge may be expected as the course was developed as a soccer specific course. The Psychology/Confidence and Organization aspects are positive as they may indicate the possibility of transferring across sports for the positive aspects of other coaching education programs.

Coaches were asked to list three ways in which their coaching would change. This resulted in 123 responses from coaches. Themes noted included Organization, Knowledge, Communication Skills, Increased Confidence, Use of Coaching in the Game Methodology, a General Increase in Coaching Skills, No Change in Coaching, and New Drills. Organization was cited by 15 coaches with Knowledge named by 14 coaches. Communication Skills was cited by13 coaches. This is an interesting finding as no aspect of the coaching program directly addresses communication. 11 coaches cited Increased Confidence. A General Increase in Coaching Skills was mentioned by 6 coaches. No Change in Coaching was listed by 2 coaches and Use of New Drills was mentioned by 1 coach.

Coaches were asked to rate the course on organization, relevancy, suitability, workload, assessment, and satisfaction using an evaluation measure developed by Hammond and Perry (2005) for the evaluation of a different soccer coach education program. The responses are in table 6.

TABLE 6. COACHES EVALUATION OF COURSE ORGANIZATION, CONTENT, AND ASSESSMENT PROCESS.

	I disagree completely	I disagree somewhat	I am neutral	I agree somewhat	I agree completely
The course was well organized	0 (0%)	2 (4.26%)	1 (2.13%)	18 (38.3%)	26 (55.32%)
The content was relevant to my learning needs.	0 (0%)	2 (4.26%)	2 (4.26%)	14 (29.79%)	29 (61.70%)
The content was suitable to my prior understanding.	0 (0%)	0 (0%)	4 (8.51%)	16 (34.04%)	27 (57.45%)
The workload was reasonable.	1 (2.13%)	0 (0%)	2 (4.26%)	14 (29.79%)	30 (63.83%)
The assessment process was appropriate.	0 (0%)	4 (8.51%)	6 (12.77%	19 (40.43%	18 (38.30%)
I am satisfied with the course.	0 (0%)	0 (0%)	2 (4.26%)	13 (27.66%)	32 (68.09%)

From the responses in table 6, coaches attending the course appear satisfied with conduct of the course. The lowest rating addressed the assessment process although even that rating was quite positive. Overall satisfaction received the highest rating. The high rating with overall satisfaction as well as the high ratings of separate components indicate that coaches were quite positive in their evaluations. The results indicate coaches were satisfied with the education program and believe they emerged from the program as more effective coaches.

Summary

The purpose of this study was to investigate changes in coaches' efficacy before and after a coaching education program (the NSCAA National Diploma course).

Analyses of the changes in coaches' efficacy as measured by the CES support predictions; coaches significantly increased in coaching efficacy following successful completion of the NSCAA National Diploma course. Coaches' efficacy was found to significantly increase in the domains of Game Strategy, Technical Instruction, and Motivation. The mean score for Character Building also increased although not significantly.

Coaches were asked open-ended questions regarding their evaluation of the course, how the course would change their coaching, and the most important things learned from the course. Coaches had a very positive evaluation of the course. Additionally, coaches indicated positive ratings for course organization, content relevancy, suitability of material, workload, and assessment procedures. The most important factors taken from the course as stated by the coaches were the Methodology, Networking/Contacts, Drills and Exercises, Psychology and Confidence, and Tactics. Coaches indicated the leading factors which would change their coaching were Organization, Knowledge, Communication, Increased Confidence, and the Coaching in the Game Methodology. The NSCAA National Diploma coaching education program received overall positive ratings from the coaches and significantly increased coaching efficacy, which has been predicted to improve coaching and athlete satisfaction (Feltz, Chase, Moritz., & Sullivan, 1999).

CHAPTER V

DISCUSSION

This study investigated the effect of a coaching education program upon the efficacy of coaches. Coaches' efficacy in four areas (Motivation, Game Strategy, Technical Instruction, and Character Building) was examined. The main research question was: Do coaches who complete the National Soccer Coaches Association of America (NSCAA) National Diploma Coach Education Course improve in their competencies after successfully completing the NSCAA course as contrasted with their competencies prior to the course? The measures completed by the coaches indicate the course has a positive effect upon coaching efficacy. Additionally, sub-problems asked if each of the four domains was affected by the course. Coaches' efficacies in the domains of Motivation, Game Strategy, and Technical Instruction were found to be improved by the course. Only Character Building did not see a significant difference in coaches' efficacy. Character Building efficacy did realize a gain in the mean although this gain was not statistically significant.

These results suggest coaching can be improved by means other than coaching experience. While no one would suggest that experience is not extremely helpful in learning to coach, the results of this study indicate improvements can be realized from coaching education in a more formal setting. The gist of the study asks "Does the NSCAA National Diploma coaching education program work towards improving coaching efficacy?" It appears the answer is "Yes". Feltz. Chase, Moritz., and Sullivan

(1999) found coaching efficacy predicted more effective coaching behaviors, improved player satisfaction, and higher levels of success in terms of winning percentage. Thus, increasing coaching efficacy can bring about better experiences for athletes.

Increased coaching efficacy through coaching education is an important result. When Gould, Giannini, Krane, and Hodge (1990) asked coaches how they obtained their knowledge, coaching education programs ranked fifth of five choices. Nelson and Cushion (2006) spoke of the predominant reliance on experience as a hindrance to coaching education. By demonstrating the value of coaching education programs and the ability of coaching education to improve coaching efficacy, the standing of coaching education programs may be improved among coaches.

Other Findings

An additional feature from the present study is the high importance placed upon networking and establishing contacts with other coaches by coaches completing the National Diploma course. The value of the networking aspect of coaching education has been cited by many authors. Werthner and Trudel (2006) discussed the importance of "unmediated learning situations" for coaches' education. Cassidy, Potrac, and McKenzie (2006) wrote of the value of coaches speaking with other coaches as an integral part of their learning.

Moon (2004) has theorized that coaches learn by bricks and networks. Coaches in the current study indicated knowledge as one of the most important factors they would use in their coaching. These are the bricks Moon (2004) refers to in her work. The networks Moon (2004) discusses are processes by which bricks are assembled. These

processes are developed by coaches and refined through retrospective reflective thinking on action as discussed by Schön. This thinking was cited by coaches enrolled in the National Diploma as networking was valued as one of the most import features gathered from the course.

Schön's learning theories are broad-based for application to many fields including coaching. Schön recognizes the value of reflecting on one's experiences with others to learn. These retrospective reflections on action situations appear to have been promoted through the National Diploma course as indicated by coaches' responses to open ended questions indicating a high value placed upon establishing networks and contact with colleagues, with whom coaches can connect and reflect ideas. Gilbert and Trudel (1999) cite these reflection processes as valuable learning tools. Thus, the NSCAA coaching education program promotes improvements in coaching through increased networking and communication among coaches.

The lack of females among enrolled coaches is a concern. Female coaches made up approximately 15% of coaches involved in this study. Despite the lack of significant differences between male and female coaches in this investigation, a question for further study would be whether or not the material relates better to male coaches rather than female coaches, thus bringing about higher enrollment rates of male coaches. This same line of thinking should be applied to various ethnic groups. If coaching education is to work for all coaches, investigations into the lack of diversity among coaching candidates are warranted. Gilbert and Trudel (2004) have similarly cited the predominance of male coaches in coaching education programs as an issue for researchers to address.

In contrast to the current study, Chesterfield, Potrac, and Jones (2010) examined the UEFA A soccer coach education course and found coaches' dissatisfaction for the course. Coaches did not value the information provided by the course and felt the material was not applicable or useful to them. This examination of the NSCAA National Diploma course found 96% of coaches agreeing with the statement "I am satisfied with this course". It should be noted the UEFA A course appeals to a higher level coach. Hammond and Perry (2005) examined a soccer coaching education program and concluded the course was too soccer specific and not methodologically driven. The NSCAA program may be accused of the same; however, the results of this study find improvement in coaches enrolled in the program.

Future Research Directions

An interesting idea to investigate would be how the NSCAA National Diploma coaching education affects Character Building and Motivation. Character Building efficacy means were the highest among the four domains, thus it appears coaches enrolled in the course possessed strong efficacy in this area. Mean score increased (although not significantly) in this domain. To learn how improvements in these areas occurred without direct emphasis from the course could be potentially helpful to the development of other coaching education programs. Coaches can overtly recognize improvements in the domains of Technical Instruction and Game Strategy while improvements in Character Building and Motivation may improve through the gains in the more soccer specific domains. As coaches sense improvements in Game Strategy and Technical Instruction, a general improvement in coaching efficacy may boost the

Motivation and Character Building scores. Following along this line of reasoning, it may be that coaching education can improve efficacy in these areas through sport specific courses. Several authors (Campbell, 1993; Gilbert & Trudel, 1999) have discussed coaching education across sports with mixed results.

The lack of diversity among participating coaches suggests further study into the effect of coaching education on minority and female coaches. Given the nature of soccer, athletes are from many ethnic and cultural groups. Investigations into female and minority coaches may reveal information helpful to future coaching education programs. By educating coaches representative of these diverse groups, gains in coaching efficacy (and resulting athlete experiences) can be observed across many backgrounds.

Additional future directions for research include investigating the long term effects of this coaching education program. Do coaches use the network of coaching contacts they established during this course? Knowles, Tyler, Gilbourne, and Eubank's (2006) study found problems with coaches failing to utilize coaching networks due to a variety of issues including time constraints and competitiveness – not wanting to demonstrate the need for seeking advice as well as no desire to share what works. A longitudinal study would be helpful in learning the continued impact of coaching education.

Examining the impact of coaching education as perceived by athletes working with a coach who participated in a coaching education program would help determine the long term and actual changes due to coaching education. Rushall and Wiznuk (1985)

investigated coaching effectiveness as rated by athletes; further study should yield more information regarding the impact of coach education upon athletes and their experiences.

Limitations

The results of this study indicate coaching efficacy improved after the successful completion of the NSCAA National Diploma course. There are several concerns to be addressed when considering these results.

The ethnic demographics are limited. The participating coaches enrolled in the course are 89% Caucasian. This is an issue for the NSCAA as the number of African-American and Latino coaches enrolled needs to increase to reflect the make-up of players in the "world's" game. The small number of coaches from different ethnic groups may indicate the NSCAA course (and coaching education as a whole) does not resonate with non-Caucasian groups.

Results of this investigation should be considered for coaches in the United States. Coaches from different cultures should not be expected to achieve the same results. Administering this course to a group made up of coaches not conforming to the make-up of subjects in the current investigation should not be expected to produce the same results.

Examining larger groups of coaches, particularly more female and minority coaches, would be helpful. It would be beneficial to learn if these same results would be consistent with larger numbers and more diverse coaches.

Studying larger number of coaches would address a question for this study (as with many other studies): “Do we only hear from coaches leaving the course with

positive experiences?" A higher response rate would help ensure coaches with a variety of experiences are being heard from by investigators.

To take the format and structure of the NSCAA program and apply it to other sports or to generalize it would be difficult to do given the logistics and authorities governing other activities and would be inappropriate. The NSCAA course is a soccer-specific course and to generalize the course structure to other sports may not bring similar effects to coach efficacy.

One feature of the NSCAA National Diploma is the consistency which information is disseminated. As staff members age and new staff instructors are brought in, care must go into training the instructors thoroughly to ensure consistency. The current staff is not young with an average age of 60 (Tipping, personal correspondence). Thus, this may prove to be a limiting factor in developing and maintaining coaching education.

No rational for how the course affects coaching efficacy is provided. An investigation into the mechanics of how the course affected areas of efficacy would be beneficial. Understanding how the course impacts coaching efficacy may leaad to applying these mechanics to other aspects of this course as well as other courses and coaching education programs.

Recommendations

For this specific coaching education program, several ideas for improvement are worth considering. Primary among these is increasing the diversity of coaches enrolled in the NSCAA programs. The College Sports Council, working with data from the

National Federation of State High School Associations, reported nearly 384,000 boys and 345,000 girls playing high school during 2008-2009. Despite numbers of high school boy and girl soccer players approaching parity, the number of male and female coaches enrolled in NSCAA courses has not nearly reached this level of equality. The predominance of white male coaches should be addressed. Discussion of improving the numbers of female and minority coaches enrolling in coaching courses should be initiated.

Developing a staff training manual to enable new staff instructors teach material along prescribed guidelines would help ensure consistency of instruction. A list of objectives for coaches enrolled in the course would further consistency as well as help maintain the logical flow from the National course to subsequent courses.

A further concern would be the long term effect, or maintenance, of the gains found in this study. Brinkerhoff (1987) suggested a key to evaluating training programs is the longevity, usage, and endurance of new knowledge gained from training. Gilbert and Trudel (1999) state a key consideration in evaluating coaching education programs is detecting any change in the use of course concepts on the playing and training grounds. Currently, the NSCAA has successive courses following the National Diploma course; however, if a coach chooses not to pursue these advanced courses, there is no way to see long term change in coaches and coaching.

Summary

To summarize, this study investigated whether coaching education changed the efficacy of coaches completing the program. Positive changes were found in the coaches

ratings of their efficacy overall and in the areas of Motivation, Game Strategy, and Technical Instruction. Additional questions revealed coaches felt "Coaching in the Game" Methodology, Drills and Exercises, Tactics, Psychology and Confidence, and Networking were among the most import features of the course. The features impacting their coaching going forward were Knowledge, Organization, and Communication. These results shine a positive light on coaching education, although the results are limited in several ways. These results should lead to coaching education becoming a more accepted manner in which coaches learn their craft. Gould, Giannini, Krane, and Hodge (1990) found coaches rating coaching courses very low among the ways they learned to coach. As coaches see improvement in their self-belief regarding their abilities in the domains of Game Strategy, Technical Instruction, and Motivation, we can hope to see improvements in their performances as coaches as predicted by Feltz., Chase, Moritz., and Sullivan (1999). Coaches value these performance gains. The value coaches placed upon networking and establishing contacts may foster learning along the ideas of Schön (1983), Gilbert and Trudel (1999), and Werthner and Trudel (2006). Improved coaching is the goal of coaching education.

In this study, coaching education improved coaching efficacy. As Feltz et al (1999) have shown, coaching efficacy is related to effective coaching behavior. Thus, the current findings indicate that coaching education may relate to an improvement in coaching.

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APPENDIX A. SURVEY AND CONSENT FORMS

coaching efficacy

1. Pre-course survey

Hello,

You have been asked to participate in a short survey and study examining the NSCAA coaching education program. If you agree to participate, you will be asked to complete a short survey before you begin the course, and a short survey following the course. Each survey should take approximately 10 minutes to complete. At no time will your identity be revealed. The purpose of the study is to examine what coaches think of the coaching education program.

What this study is about:

Bill Steffen has explained the procedures involved in this research study. These include the purpose and what will be required of you. Any new information that comes up during the study will be provided to you if the information might affect your willingness to continue participation in the project.

Possible good things that may come out of this study:

Through this study, coaching education programs may improve. This will lead to better coach education and better athlete experiences.

Possible risks that may occur in this study:

There are no risks to you during this study.

Bill Steffen has answered all of your current questions about you being in this study. Any other questions concerns or complaints about this project or benefits or risks associated with being in this study can be answered by Bill Steffen who may be contacted at gkbill@yahoo.com

Leaving the study:

You are free to refuse to participate or to withdraw your consent to be in this study at any time. There will be no penalty or unfair treatment if you choose not to be in the study. Being in this study is completely voluntary.

My personal information:

Your privacy will be protected. You will not be identified by name or other identifiable information as being part of this project.

Study approval:

The University of North Carolina at Greensboro Institutional Review Board makes sure that studies with people follows federal rules. They have approved this study and its consent form.

My rights while in this study:

If you have any concerns about your rights, how you are being treated or if you have questions, want more information or have suggestions, please contact Eric Allen in the Office of Research Compliance at UNCG at (336) 256-1482.

Data will be stored off the UNCG campus. Only the investigator will have access to the data. Data will be stored for three years, then destroyed.

By clicking on the "YES" box below, you are agreeing that you are 18 years of age or older. You also agree to participate in the study described to you by Bill Steffen.

coaching efficacy

* **1. I agree to participate in the study described to me by Bill Steffen. I also agree that I am 18 years old.**

- [ ] yes
- [ ] no

coaching efficacy

2. Pre-course questions

Thank you for participating in this study. Your responses will be kept completely confidential. Your honesty and thoroughness will help the NSCAA improve their course offerings.

You will be prompted to complete a follow-up survey following the course.

Both this survey and the follow-up survey are necessary for the study.

You may obtain the results of this study by emailing your request to gkbill@yahoo.com

*** 1. Please complete all information requests below. Your NSCAA membership number is only needed for matching a pre-course survey to a post-course-survey.**

What is your NSCAA membership number?

*** 2. Are you male or female?**

- male
- female

*** 3. What is your age?**

- Younger than 25 years old
- 25-30 years old
- 31-40 years old
- 41-50 years old
- 51-60 years old
- Older than 60 years old

4. With what ethnic group do you most identify?

- White/Caucasian
- Black/African-American
- Latino/Hispanic
- Asian
- Other

Other (please specify)

coaching efficacy

*** 5. Do you coach male, female or both male and female players?**

- ○ male
- ○ female
- ○ both

6. What coaching roles do you presently fulfill (you may check more than one answer)?

- ☐ High School Boys
- ☐ High School Girls
- ☐ Middle School Girls
- ☐ Middle School Boys
- ☐ College Men
- ☐ College Women
- ☐ Club Boys
- ☐ Club Girls
- ☐ Other

Other (please specify)

*** 7. What is the age of players you coach (you may select more than one answer)?**

- ☐ below 6
- ☐ 6-8 years old
- ☐ 9-11 years old
- ☐ 12-14 years old
- ☐ High School
- ☐ 15-17 years old
- ☐ 18-20 years old
- ☐ College
- ☐ Other

Other (please specify)

coaching efficacy

*** 8. How many years have you been coaching soccer?**

- ◯ less than 2 years
- ◯ 3-5 years
- ◯ 6-8 years
- ◯ 9-11 years
- ◯ more than 12 years

9. At which site are you taking the NSCAA National Diploma course?

- ◯ Cary, NC
- ◯ Wofford College, Spartanburg, SC
- ◯ Regis University, Denver, CO
- ◯ Bloomsburg State University, Bloomsburg, PA
- ◯ Amherst College, Amherst, MA
- ◯ Elmhurst College, Elmhurst, IL
- ◯ San Francisco State University, San Francisco, CA
- ◯ Benedictine College, Atchison, KS

10. What is your purpose for taking an NSCAA course (you may check more than one answer)?

- ☐ enhance coaching skills
- ☐ required for maintaining current position
- ☐ required for advancing position
- ☐ Other

Other (please specify)

coaching efficacy

*** 11. Coaching Confidence Questionnaire**

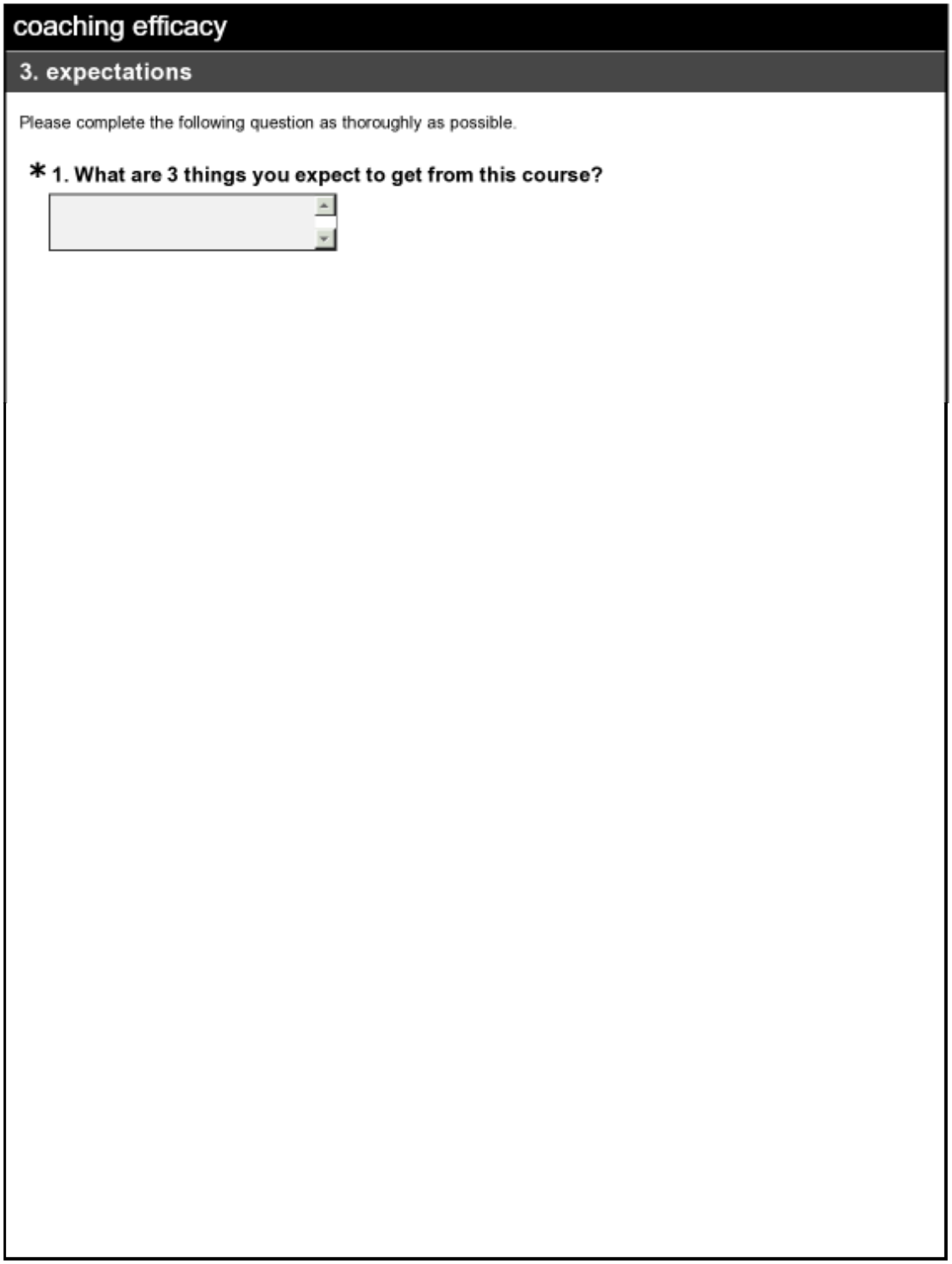
Coaching confidence refers to the extent to which coaches believe that they have the capacity to affect the learning and performance of their athletes. Think about how confident you are as a coach. Rate your confidence for each of the items below. Your answers will be kept completely confidential.

How confident are you in your ability to--

	Not at all confident									Extremely confident
1. help athletes maintain confidence in themselves?	○	○	○	○	○	○	○	○	○	○
2. recognize opposing team's strengths during competition?	○	○	○	○	○	○	○	○	○	○
3. mentally prepare athletes for game strategies?	○	○	○	○	○	○	○	○	○	○
4. understand competitive strategies?	○	○	○	○	○	○	○	○	○	○
5. instill an attitude of good moral character?	○	○	○	○	○	○	○	○	○	○
6. build the self-esteem of your athletes?	○	○	○	○	○	○	○	○	○	○
7. demonstrate the skills of your sport?	○	○	○	○	○	○	○	○	○	○
8. adapt to different game/meet situations?	○	○	○	○	○	○	○	○	○	○
9. recognize opposing team's weakness during competition?	○	○	○	○	○	○	○	○	○	○
10. motivate your athletes?	○	○	○	○	○	○	○	○	○	○
11. make critical decisions during competition?	○	○	○	○	○	○	○	○	○	○
12. build team cohesion?	○	○	○	○	○	○	○	○	○	○
13. instill an attitude of fair play among your athletes?	○	○	○	○	○	○	○	○	○	○
14. coach individual athletes on technique?	○	○	○	○	○	○	○	○	○	○
15. build the self-confidence of your athletes?	○	○	○	○	○	○	○	○	○	○
16. develop athletes' abilities?	○	○	○	○	○	○	○	○	○	○
17. maximize your team's strengths during competition?	○	○	○	○	○	○	○	○	○	○
18. recognize talent in athletes?	○	○	○	○	○	○	○	○	○	○
19. promote good sportsmanship?	○	○	○	○	○	○	○	○	○	○
20. detect skill errors?	○	○	○	○	○	○	○	○	○	○

coaching efficacy

21. adjust your game strategy to fit your team's talent?	○	○	○	○	○	○	○	○	○	○
22. teach the skills of your sport?	○	○	○	○	○	○	○	○	○	○
23. build team confidence?	○	○	○	○	○	○	○	○	○	○
24. instill an attitude of respect for others?	○	○	○	○	○	○	○	○	○	○


coaching efficacy
3. expectations
Please complete the following question as thoroughly as possible.
* 1. What are 3 things you expect to get from this course?

coaching efficacy

4. thank you

Thank you for participating in this study. You will be asked to complete a follow up survey after completing the course.

Please close your browser after completion of the survey.

APPENDIX B. NSCAA NATIONAL DIPLOMA COURSE SCHEDULE

Day 1	**TIME**	***Day 2***	***Day 3***	***Day 4***	***Day 5***	***Day 6***	***Day 7***
	6:30 - 7:45 a.m.	***Breakfast***	***Breakfast***	***Breakfast***	***Breakfast***	***Breakfast***	***Breakfast***
	8:00 a.m.	**Review**	**Review and Match Analysis**	**Review**	**Goalkeeping**	**Review**	**Final Exam and Closing Ceremony**
	8:45 - 9:45 a.m.	**Dribbling and Tackling**	**Long Distance Passing and Heading**	**Ethics**	**Field Session II ALL**	**8.00 - 9.15 Club Development**	
	9:45 - 10:45 a.m.	**Passing and Receiving**	**Field Sessions I ALL**	**Group Tactics II**	**Field Session II ALL**	**Field Tests ALL**	
	10:45 - 11:45 a.m.	**Shooting**	**Field Sessions I ALL**	**Group Tactics III**	**Field Session II ALL**	**Field Tests ALL**	
	Noon	***Lunch***	***Lunch***	***Lunch***	***Lunch***	***Lunch***	
	2:00 - 3:30 p.m.	**Teaching Process 2.30 - 3. 45 4**	**Field Sessions I ALL**	**Match Analysis Review All**	**Field Session II ALL**	**Field Tests ALL**	
	3:45 - 4:45 p.m.	**Group Tactics I**	**Field Sessions I ALL**	**Functional Training**	**Field Session II ALL**	**Field Tests ALL**	
	4:45 - 5:45 p.m.	**Model Teaching**	**Field Sessions I ALL**	**Model Teaching**	**Field Session II ALL**	**Field Tests ALL**	
6 - 6.45pm Opening	**6:00 p.m.**	***Dinner***	***Dinner***	***Dinner***	***Dinner***	***Dinner***	
7 - 8.15pm Methods	**7:30 p.m.**	**Theory of Tactics**	**TBA - Match Analysis**	**Tutorial Evening**	**NISOA Presentation**	**Psychology**	
	9:00 p.m.	**Evening Social**					

APPENDIX C. SUMMARY OF COACHING EDUCATION PROGRAMS

Sport	Sport Website	Coaching Education Promoted?	Type of Program (certification/ license/ diploma)?	Required for Coaching?	Levels
American Football	http://www.usafootball.com/	yes; on website	?	no	?
Archery	http://archery.teamusa.org/	yes	certification	no	4
Badminton	http://www.usabadminton.org/	available; not promoted	?	no	5 (101, 1, 2, 3, 4)
Baseball	http://web.usabaseball.com/index.jsp	none	none	no	none
Basketball	http://www.usabasketball.com/	none	none	no	none
Biathalon	http://biathlon.teamusa.org/content/index/906	available; not promoted	certification	no	4
Bobsled/Skeleton	http://bobsled.teamusa.org/	none	none	no	none
Bowling	http://www.bowl.com/coaching/becomeaCoach.aspx	yes	certification	?	level1; bronze; silver; gold
Boxing	http://usaboxing.org/	no (mentioned not promoted)	?	?	?
Canoe/Kayak	http://usack.org/	?	?	?	?
Curling	http://www.usacurl.org/usacurl/	mentioned	certification	?	3
Cycling	http://www.usacycling.org/	yes	certification	?	2
Diving	http://www.usadiving.org/05redesign/main/index.html	yes	certification	yes	2 (?) (bronze and silver for Grassroots; gold within Dive Safe); Spotting Training elective course (3 levels of spotting/training)
Equestrian	http://www.usef.org/	no	certification (via FEI)	no	2 levels (3rd level in planning stages)

Sport	Hours?	In House or Outsourced?	Online?	Sport Sciences Included?	Continuing Education Required?
American Football	?	in house	yes; also on sites	?	no
Archery	level 1:8hrs.; level 2:30hrs.; level 3:5days; level 4:6days	partial (ASEP)	partial	yes (level 3)	no
Badminton	(6 hrs., 15 hrs., 25 hrs., 50 hrs. , 100 hrs.)	in house	no	no	no
Baseball	none				
Basketball	none				
Biathalon	level1:12hrs.; level2: 2 days; level3: 2 weekends, 2 ASEP courses; level4: correspondence, 2 ASEP courses	partial (ASEP)	partial	yes (ASEP courses)	no
Bobsled/Skeleton	none				
Bowling	5 hrs.; 2.5 days; 3 days; observation by panel	in house	partial	psychology included in all courses	no
Boxing	?	?	?	?	
Canoe/Kayak	?	?	?	?	
Curling	? New structure - revised to ensure all certified coaches pass new courses	in house	?	?	
Cycling	?	in house	webinars - yes; courses - no	in webinars	yes
Diving	?	in house and with Red Cross and YMCA's	no	first aid	
Equestrian	level 1: 4 days (2 days + 2 days); level2: 6 days (3 + 3) without Eventing module; 7 days (3 + 4) with Eventing module	done through FEI (international governing body)	no	yes (level 2)	logbook

Sport	other	comment
American Football	http://www.usafootball.com/register/benefits/coaching	
Archery	http://www.usarchery.org/usarchery/html/Coaching.html	
Badminton	http://www.usabadminton.org/image/coaching/CD-CoachingCourseOV.jpg;	
Baseball		
Basketball	http://www.fibaamericas.com/centro_us.asp	plans to introduce coaching certification throughout America (unsure about USA)
Biathalon	http://www.usbiathlon.org/coach_certify.html	
Bobsled/Skeleton		
Bowling	http://www.bowl.com/coaching/becomeaCoach.aspx	
Boxing	stated courses were offered - no information on courses content or enrollment information	
Canoe/Kayak	http://www.canoeicf.com/	
Curling	http://www.usacurl.org/goodcurling//images/Training/instructor.training.updates.pdf	requirements (new) - attend instructional clinic, pass test, work as instructor, pass first aid class
Cycling	http://www.usacycling.org/coaches/	webinars on various topics at various times
Diving		not very clear on levels and instruction/curriculum
Equestrian	http://www.fei.org/Development/Coaching_System/Pages/What_Is_Coaching.aspx	done through FEI (international governing body)

Sport	Sport Website	Coaching Education Promoted?	Type of Program (certification/ license/ diploma)?	Required for Coaching ?	Levels
Fencing	http://www.usfca.org/Default.aspx?tabid=36	yes	certification	?	4: Assistant Instructor, Moniteur, Prevot, Fencing Master
Field Hockey	http://www.usfieldhockey.com/programs/coach/accreditation/index.html	yes	accreditation	no	4; Level O, level 1, 2, and 3
Figure Skating	http://www.usfsa.org/	no	?	yes (can be tested through)	Category A: professional coach/choreographer (skaters of national level); Category B: professional coach/choreographer (skaters of regional level); Category C: group instructor; Category D: Sport Science Support Services
Gymnastics	http://www.usa-gymnastics.org/	yes	yes	?	safety/Risk management certification; Preschool fundamentals; First Aid Basics; Professional Development Program - level 1 Accreditation; Women's level 1-4 skill development courses; Trampoline & Tumbling level 1
Handball	http://www.usateamhandball.org/	?	?	?	?
Ice Hockey	http://www.usahockey.com/	yes	certification	yes	levels 1-4 (corresponding to player age) level 5 (not detailed)

Sport	Hours?	In House or Outsourced?	Online?	Sport Sciences Included?	Continuing Education Required?
Fencing	Asst.: written and practical exam; Moniteur: written (online or hard copy) and practical exam; Prevot (unknown); Master (exam, demo, and thesis)	in house	yes (partial)	?	
Field Hockey	level 3: practical assessment and written presentation; level 2:12 hours (9 hrs. theory, 3 hrs. practical); level : 6 hrs. no exam; level O 2 hrs.	in house	no	no	
Figure Skating	annual continuing education credits mandated	in house (see comments)	yes	no	
Gymnastics	level 1-4: 2 day 12 hour course (not specified if includes all 4 levels or if one level per session)	in house	yes (partial)	Psychology, Coaching fundamentals	
Handball	?	?	?		
Ice Hockey	levels 1-3: 1 day; level 4: 2.5 days	in house	no	?	

Sport	Other	comment
Fencing	http://www.usfca.org/Default.aspx?tabid=89	certification may be for one, two, or all three weapons (e.g., Master of Epee, Foil, or Sabre; or Master d'Armes). Practical exam given by two Master Instructors.
Field Hockey	http://www.usfieldhockey.com/programs/coach/accreditation/USAFieldHockeyCoachingAccrediationProgram.pdf	
Figure Skating	http://figureskating.about.com/gi/dynamic/offsite.htm?zi=1/XJ&sdn=figureskating&cdn=sports&tm=9&gps=253_118_1276_824&f=00&su=p504.1.336.ip_&tt=11&bt=1&bts=1&zu=https%3A//psa.prosperityIms.com/req/psa_student/	manual for hosting skills competition online (pdf); PSA qualifications strictly enforced at professional events
Gymnastics	http://www2.usa-gymnastics.org/education/courses_descriptions.html	
Handball	?	blank page on website for coaches information
Ice Hockey	http://www.usahockey.com//Template_Usahockey.aspx?NAV=CO&ID=19344	certificates valid for 3 years

Sport	Sport Website	Coaching Education Promoted?	Type of Program (certification/ license/ diploma)?	Required for Coaching?	Levels
Judo	http://www.usjudo.org/	yes	certification	no	6 levels (Club, State, Regional, National, Continental, International)
Karate	http://www.usankf.org/	yes	new certification	yes (?)	4 levels
Lacrosse	http://www.uslacrosse.org/	yes	certification (planned for 2009)	no	2 levels
Luge	http://www.usaluge.org/index.php	no	none	no	none
Pentathlon	http://pentathlon.teamusa.org/	no	none	no	none
Racquetball	http://www.usra.org/	no	none	no	none
Roller Sports	http://www.usarollersports.org/	yes	cerification	no	levels (Artisitc, Speed, and Hockey disciplines)
Rowing	http://www.usrowing.org/index.aspx	yes	none	no	level I, II, III
Sailing	http://www.ussailing.org/	yes	none	no	level 1, 2, 3
Shooting	http://www.usashooting.org/	yes	certification	no	level 1, 2, 3; for different disciplines (rifle, pistol, shotgun)
Ski and Snowboard	http://www.ussa.org/	yes	certification	no	100, 200, 300 (300 level in development)
Soccer	USSF: http://www.ussoccer.com/; NSCAA: www.nscaa.com	yes	license; diploma	no	A, B, C, D, E; State, Regional, National, Advanced National, Premier, Master

Sport	Hours?	In House or Outsourced?	Online?	Sport Sciences Included?	Continuing Education Required?
Judo	?	in house	?	?	
Karate	1 day (?)	in house (attempting to align with other USOC sports)	?	?	
Lacrosse	7 hrs. (1 day)	in house	no		
Luge	-	-	-		
Pentathlon	-	-	-		
Racquetball	-	-	-		
Roller Sports	?	in house	?	?	
Rowing	Level I, II 2 days; Level III 2.5 days	in house	no	yes (athlete development and learning; psychology)	yes
Sailing	level 1: 40 hours over 4 days; level 2: 2 days; level 3: 300 hours of on-water coaching, various other requirements	in house (level 3 modules may be outsourced: college coursework)	no	yes	yes (no course work, other duties)
Shooting	level 1: 2 days	outsourced to ASEP and NRA programs	no	yes (through ASEP)	yes certification good for 3 years; renewal requires proof of coaching throughout the 3 years following initial certification
Ski and Snowboard	?; dependent on pacing through ASEP mosules	sport sciences outsourced (ASEP or CD from USSA)	yes (partial); ASEP courses	yes; components of level 200	yes
Soccer	D, E, State, Regional: 2 day; A, B, C 9 day; Nat., Adv., Premier: 7 day; Master: 1 year	in house	no	yes	USSF: yes, NSCAA: no

Sport	Other	Comment
Judo	http://www.usjudo.org/coachingnotes.asp	first aid/cpr required only for club coaches
Karate	http://www.usankf.org/index.php?option=com_content&task=view&id=107&Itemid=113	just starting up (?)
Lacrosse	http://www.uslacrosse.org/education/index.phtml	certification planned as part of Strategic Initiative
Luge	-	more emphasis on becoming an official
Pentathlon	http://www.pentathlon.org/index.php?id=31	international pentathlon site; coaching may be left to individual disciplines
Racquetball	http://usra.org/RacquetballUniversity.aspx	mention of USAR Elite Training Camp Instructors; seems privatized
Roller Sports	http://www.usarollersports.org/vnews/display.v/ART/4429b54b4dd0d	no detailed information available
Rowing	http://www.usrowing.org/Coaches/CoachingEducationProgramOverview/index.aspx	all levels require CPR, First Aid and Boating Safety certificates; level III coaches must be available to mentor
Sailing	http://www.ussailing.org/training/Instructors/SBLevel2_3/index.asp	level 4, 5 to be developed
Shooting	http://www.nrahq.org/education/training/coach_training_schools.asp;	
Ski and Snowboard	http://www.ussa.org/magnoliaPublic/ussa/en/formembers/coaches/education.html	Alpine Coaching in place; Nordic, Freestyle, Snowboarding are in planning stages
Soccer	http://www.ussoccer.com/coaches/schools/index.jsp.html	additional courses available (goalkeeping [both USSF and NSCAA], fitness [USSF], nutrition [USSF] highschool [NSCAA], Director of Coaching [NSCAA])

Sport	Sport Website	Coaching Education Promoted?	Type of Program (certification/ license/ diploma)?	Required for Coaching?	Levels
Softball	http://www.usasoftball.com/folders.asp?uid=1	yes	clinics on various topics	no	none
Speed Skating	http://www.usspeedskating.org/	yes (poorly)	?	?	Novice, 1, 2, 3, 4(?)
Squash	http://www.ussquash.com/	yes	certification	no	Level 1(Asst. Coach), 2, 3 (Head Coach)
Swimming	http://www.usaswimming.org/usasweb/DesktopDefault.aspx	yes	certification	no	?
Synchronized Swimming	http://www.usasynchro.org/	yes	certification	no	Level 1, 2
Table Tennis	http://www.usatt.org/index.shtml	yes	certification	no	Instructor, Club, State, Regional ,National (level 4)
Taekwondo	http://usa-taekwondo.us/	yes	certification	no	Coaching Edge, Associate, Level 1, Level II
Tennis	http://www.usta.com/	yes	license	no	Recreational, Professional 1, 2, 3, Master
Track and Field	http://www.usatf.org	yes	certification	no	Developmental, Level 1,2,3
Triathlon	http://www.usatriatholon.org	yes	certification	no	Level 1,2,3
Volleyball	http://www.usavolleyball.org	yes	accreditation	no	IMPACT, CAP Level I, II, III, IV, V
Water Polo	http://www.usawaterpolo.org	yes	certification	no	none
Water Ski	http://www.usawaterski.org/	yes	none	no	Level 1, 2, 3
Weightlifting	http://weightlifting.teamusa.org/	yes	certification	no	Club Regional Senior; Sport Performance Courses
Wrestling	http://www.themat.com	yes	certification	no	copper, bronze, silver, gold

Sport	Hours?	In House or Outsourced?	Online?	Sport Sciences Included?	Continuing Education Required?
Softball	varies	in house	no	various	no
Speed Skating	?	in house	no	yes	?
Squash	12 hours, 24hrs., 24 hrs.	in house	patial (with ASEP)	yes (level 3: physiology, psychology)	no
Swimming	dependent upon completion of required certifications	in house (except for first aid and CPR)	only SafetyTest	yes; links on webpage	yes; required after passing Foundations of Coaching - within 1 year
Synchronized Swimming	independent study; weekend clinics: 15 hours	in house	no	yes; included in curriculum of clinics	?
Table Tennis	submit credentials, activity, articles, attend seminars	in house	no	no	no
Taekwondo	1hr. 45 min., online, 8 hrs., 12 hrs.	in house	yes (Associate)	no	no
Tennis	6 hrs. for recreational, exams for Professional	done through USPTA	partial (Professional)	?	no
Track and Field	4 hrs., 2.5 days, 7 days, multi-day	in house	no	all	no
Triathlon	3 day, NA, NA	In house (outside ed. Req. for Level2, 3	no	can be included or not	no
Volleyball	4-6 hrs., 13-16 hrs., 15-18 hrs., 28-50 hrs., 28-32 hrs.	in conjunction w/ASEP IMPACT, CAP I	no	yes	re-certification required every 4 years
Water Polo	1 day	in house	no	?	no
Water Ski	not listed; self study exams; video exam for level 3	in house	no	yes (level 3)	no
Weightlifting	Club: 2 day; Regional, Senior: 5 day; Sport Performance: 3 day	in house	no	yes	no
Wrestling	4hrs.,6 hrs., 5 days, plus tasks	in house	no	yes	no

Sport	Hours?	In House or Outsourced?	Online?	Sport Sciences Included?	Continuing Education Required?
Softball	varies	in house	no	various	no
Speed Skating	?	in house	no	yes	?
Squash	12 hours, 24hrs., 24 hrs.	in house	partial (with ASEP)	yes (level 3: physiology, psychology)	no
Swimming	dependent upon completion of required certifications	in house (except for first aid and CPR)	only Safety Test	yes; links on webpage	yes; required after passing Foundations of Coaching - within 1 year
Synchronized Swimming	independent study; weekend clinics: 15 hours	in house	no	yes; included in curriculum of clinics	?
Table Tennis	submit credentials, activity, articles, attend seminars	in house	no	no	no
Taekwondo	1hr. 45 min., online, 8 hrs., 12 hrs.	in house	yes (Associate)	no	no
Tennis	6 hrs. for recreational, exams for Professional	done through USPTA	partial (Professional)	?	no
Track and Field	4 hrs., 2.5 days, 7 days, multi-day	in house	no	all	no
Triathlon	3 day, NA, NA	In house (outside ed. Req. for Level2, 3	no	can be included or not	no
Volleyball	4-6 hrs., 13-16 hrs., 15-18 hrs., 28-50 hrs., 28-32 hrs.	in conjunction w/ASEP IMPACT, CAP I	no	yes	re-certification required every 4 years
Water Polo	1 day	in house	no	?	no
Water Ski	not listed; self study exams; video exam for level 3	in house	no	yes (level 3)	no
Weightlifting	Club: 2 day; Regional, Senior: 5 day; Sport Performance: 3 day	in house	no	yes	no
Wrestling	4hrs.,6 hrs., 5 days, plus tasks	in house	no	yes	no

Sport	other	comment
Softball	http://www.usasoftball.com/folders.asp?uid=122	
Speed Skating		reciprocity with Canadian program
Squash	http://www.ussquash.com/audiences/content.aspx?id=774	2 level 1, 1 level 2 course(s)/year, 1 level 3 course every other year; level 1 = 12 coaches; level 2,3 = 16 coaches
Swimming		
Synchronized Swimming	http://www.usasynchro.org/education/coaches.htm	clinic based; unsure of requirements
Table Tennis	http://www.usatt.org/coaching/coaches_certification.shtml	activity important, references from players coached and level of achievement
Taekwondo	http://usa-taekwondo.us/content/index/2648	Level 3, 4 under development
Tennis	http://uspta.com/index.cfm?MenuItemID=1627&MenuSubID=278&MenuGroup=New%2DUSPTA%2DJoin	
Track and Field		event grouped after Level 1
Triathlon		
Volleyball		renewal can be done by taking next level course
Water Polo		topics vary by site
Water Ski	http://www.usawaterski.org/graphics/downloads/USAWSCoachingDevelopment.pdf	first aid/cpr required for level 2, 3; perform instruction necessary for level 2, 3
Weightlifting	http://weightlifting.usoc.org/content/index/1411	
Wrestling	http://www.themat.com/section.php?section_id=8&page=display&ArticleID=4	